

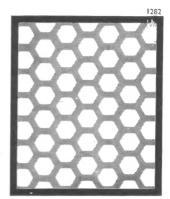


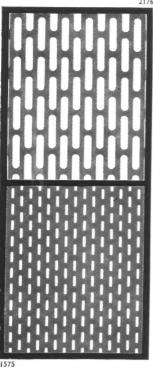
With some thousands of patterns listed, Harvey Perforating Service is truly a variety performance. If you seek some particular effect in perforated sheet material, it is more than likely that tools to produce it are already available in the Harvey range.

'HARCO' PERFORATED METAL can be finished to harmonise with any decorative scheme—stove enamelled in colour, plated, oxidised, anodised, polished and lacquered or plastic coated.

'HARCO' PLASTIC SHEET can also be perforated in certain patterns, and enquiries concerning the working of such material are welcomed.

Please ask for literature.



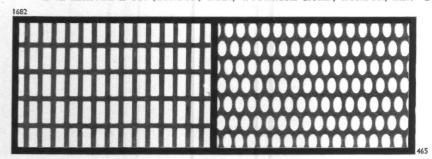


Patterns illustrated are shown half-size



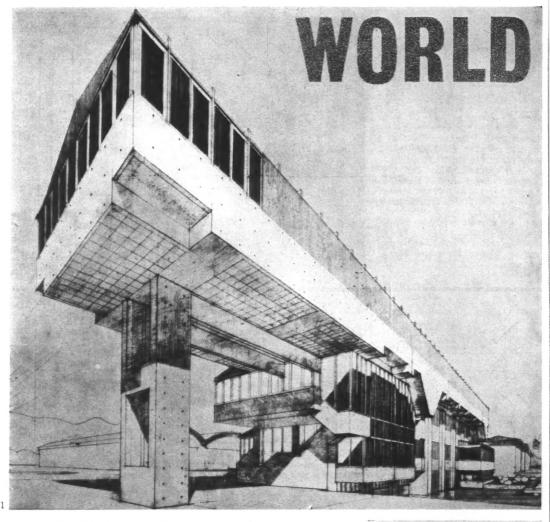
# PERFORATED METALS & PLASTICS

G. A. HARVEY & CO. (LONDON) LTD., WOOLWICH ROAD, LONDON, SE7. Telephone: GREenwich 3232 (22 lines)



Other Harvey Products:

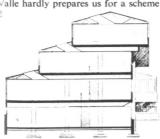
DECORATIVE SCREENING IN PATENT
METALACE AND RIBBON WIREWORK
COMPLETE INSTALLATIONS OF OFFICE
FURNITURE AND PARTITIONING IN
STEEL STEEL CLOTHES LOCKERS AND
CUPBOARDS · VENTILATORS AND DUCTING · ZINC AND COPPER ROOFING P12



# STUDIO VALLE

Casabella has just celebrated the tenth year of architectural activity of Studio Architetti Valle of Udine with an article by Francesco Tentori (in 246, 1960) reviewing the work done to date. In those ten years, Valle has become a name to conjure with-it is difficult to think of any other situation where a project such as the 'Rex' factory at Pordenone, I, could appear as a design seriously intended for construction, rather than a fourth-year student project, but this scheme is going ahead-progress photographs (not yet very conclusive) support the article, as well as elevations, working details and drawings of the extraordinary leaning section that gives roof lighting to three office floors, 2.

Previous industrial work by Studio Valle hardly prepares us for a scheme

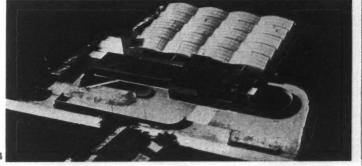


of this kind—the Chiesa works at Udine is no more than tamely eccentric in detail, 3, in spite of its Mendelsohnian plan, 4. But the un-





completed hospital at Portagruaro



# **ACKNOWLEDGMENTS**

COVER: Galwey Arphot. WORLD, pages 365-368: 1-7, Casabella; 8-10, The Japan Architect; 13-18, Bauen+ Wohnen; 19-21, El Arquitecto Peruano; 22-29, Deutsche Bauzeitung; 30-34, Modulo. VIEWS AND REVIEWS, pages 369-371: 1, R. Trorey; 9, Logan; 10, Frank Stanton. Frontispiece, page 372: Abby Aldrich Rockefeller Folk Art Collection. Two University Hostels, pages 378–387: College Hall, Leicester, 1, 5, 6, 8–11, 13, Edgar Hyman; 3, 4, 7, 12, Galwey Arphot; Chamberlain Hall, Southampton, Henk Snoek. CRITICISM, pages 400-410: 5-8, 10, 14, Monica Lehmann; 9, 15, C. Michael Pearson; 11-13, 17, John Hillebon Agency. INTERIOR DESIGN, pages 411-414: 1-3, 7, Galwey Arphot; 4-6, Edgar Hyman. CURRENT ARCHITECTURE, pages 417-419: 1, 3, 4, P. W. & L. Thompson; 5-7, MOW. MISCELLANY, pages 420-426: Exhibitions, 3-9, 11-13, Abby Aldrich Rockefeller Folk Art Collection; Plants, 1, Toomey Arphot; 2, 3, Jane Bown, The Observer; Lamp-posts, Andrew Schumann. Skill, pages 427-432: 4, Norman Gold; 6, 9, 10, C & CA.



The Cover is a close-up photograph of part of the wrought-iron and stainless steel grille-door, designed by Louis Osman, which leads into the new treasury in Lincoln cathedral. The treasury, which is described and illustrated on pages 411-14, is designed to exhibit diocesan plate and has been installed in a disused chapel with financial help from the Goldsmiths' Company. Through the grille in the photograph can be seen some of the stone vaulting of the chapel and some of the plate arranged on shelves in a central showcase.



#### THE ARCHITECTURAL REVIEW

9-13 QUEEN ANNE'S GATE, WESTMINSTER, SWI WHITEHALL 0611 FIVE SHILLINGS VOLUME 129 NUMBER 772 JUNE 1961

SUBSCRIPTION RATE:-The annual post free subscription rate, payable in advance, is £3 3s. 0d. sterling, in USA and Canada \$10.50, in Italy Lira 6940, elsewhere abroad £3 10s. 0d. Italian subscription agents: A. Salto, Via Santo Spirato 14, Milano; Librerie Dedalo, Via Barberini 75-77, Roma. An index is issued half-yearly and is published as a supplement to the REVIEW.

J. M. Richards

Directing Editors Nikolaus Pevsner H. de C. Hastings Hugh Casson Executive Editor J. M. Richards Assistant Executive Editor Reyner Banham

Assistant Editor (Production) William Slack Features Editor Kenneth Browne Technical Editor Lance Wright

Assistant Editor (Counter Attack) Ian Nairn

De Burgh Galwey W. J. Toomey Staff Photographers Advertisement Manager

365 World

Views and Reviews

Frontispiece

373 Aspects of Ornament: Peter Collins

378 Two University Hostels 1, College Hall, Leicester: Architect, J. Leslie Martin (in association with Trevor Dannatt) 2, Chamberlain Hall, Southampton: Architects, Basil Spence & Partners

388 The Architecture of Port-Wine: René Taylor

400 Dominican Monastery of La Tourette, Eveux-Sur-Arbresle: Colin Rowe

411 Interior Design Treasury in Lincoln Cathedral Architect, Louis Osman

415 Malthus Senior A Romantic Gardener: L. F. Gregory

417 Current Architecture Miscellany

420 Exhibitions

423 Plants

423 Lamp-posts

426 Counter-attack

427 Skill Heavy Cladding Panels, 2: Michael Rostron

432 The Industry

436 Contractors, etc.



the suavely unpredictable block of flats in Udine, strictly attributable to Firmino Toso and Gino Valle, also with pierced chassis-beam at the level where the structure changes, 7-both of these do have something of the quality of structural bravura that Rex has, even if they cannot quite equal its air of being a piece of heroic-age engineering such as might have appeared in, say, one of the industrial architecture picture-books of the 'twenties. Tentori explains Rex partly in terms of functionalism, partly in terms of the landscape in which it is sited and the feasible views of it from the road, partly in terms of a supposed 'Friulian' type of expression proper to an office working in Udine (albeit with numerous American and British assistants at various times) and partly in terms of some form of antirationalism, in which the views of Italo Calvino, which were being used to beat up the irrationalities of Neoliberty only a few months back, are cited to excuse the architects from being paralysed by wisdom or sinking in a sea of objectivity!

# TOMIGAOKA

## low-cost houses for Japanese commuters

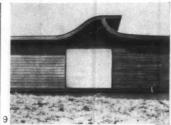
Low cost housing is, by a tradition as old as modern architecture, a field of design where relentless rationalism is supreme and unquestionable. However, the Tomigaoka homes sponsored by the Kinki Railway Company in Japan as part of a public-authority package-deal commuter development, differ—in some ways—startlingly from the norms of this kind of development. Architects were fully involved (as rare in this kind of work in Japan as anywhere else), fifteen teams with offices in Osaka being each assigned one concrete prototype and one wooden, the aim of the exercise being to raise standards of accommodation above legal minima without exceeding reasonable maxima for selling price-under

# Tomigaoka

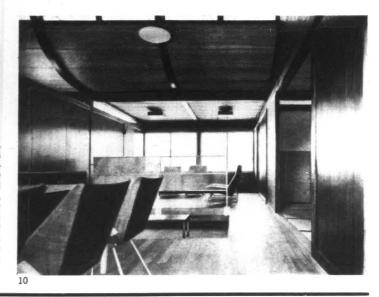
£4,000 for a concrete house, £3,000 for a wooden, plus about £500 for interior fittings and minimum sitework such as fencing. Only in the very last paragraph of Japan Architect's description of the scheme does one come across the payoff, that this price, for houses of fourteen hundred square feet and up, includes the cost of the land.



The solutions vary widely, from international cubist, 8, by the Research Institute of Architecture, to a sort of



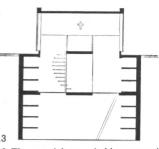
Katsura Revival, by the Endo office, but quite the most astonishing design is another one by the Research Institute team—a plain, elegant and very satisfyingly simple blend of East and West when viewed from its garden side, but twitching up into an extraordinary gable, 9, like a Japanese pictogram, on the end wall, which registers equally strongly inside the house, 10, where it provides a species of laylight above the centrally situated living and dining rooms.



# **SEPULCHRE**

Man's last home is usually the least functional, and most over-designed, in which he is called upon to 'live.' In spite of everything that good taste and sense of the transience of worldly things would seem to require, a decent reticence is harder to find in the architecture of mausolea than anywhere else, and a design as controlled and selfcontained as 11, by Francesco Bullrich and Eduardo Polledo of OAM-Buenos Aires, is very rare—as we all know. The simplicity is inherent, not superficial—the necessary chapel is provided by a bridge opposite the entrance, and from this a spiral staircase leads down into the tomb-chambers below, 12 and





13. The materials are suitably grave and durable—concrete, faced where suitable in San Luis granite, end-windows,



14, and doors of obscured glass in steel frames, white marble floors and plain plastered walls inside, 15.



# LANDSCAPE ATTITUDE



Much argument about how landscapists, as a profession, view buildings, should be stilled by the new Landschaftsverband headquarters in Cologne, illustrated in Bauen und Wohnen 2/1961—the elevations, 16, tell the story-landscapists regard buildings as a regular geometrical background to natural forms. Although the plodding Miesian regularity of these exteriors by Schulze-Feilitz and von Rudlof becomes daunting after fifteen or sixteen bays, the building has a magnificent site facing the cathedral, 17, from the other side of the Rhine, and some handsome interior details, such as the staircase. In spite of these graces, however, one cannot but wonder whether it is sufficient for a building of a 'Representational'



366

nat Ara que por clea Gat cep skei

ing, the topp

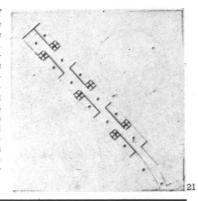
8

## Cologne



nature to reduce itself to the level of little more than a space modulator-diagram in which growing plants can run riot to visual advantage, and whether a Miesian façade can survive being so long and regular if it is not tall enough to catch a fair amount of reflected sky pattern. One suspects that façades such as these, however well detailed, 18 (though these are not of Schneider-Esleben quality), will soon look as dull as the concrete-framed sub-modern rent-boxes that went up all over Germany in the immediately post-war years.

ground level and consist of sets of sheltered waiting-bays and luggage areas, 21, in which plane-loads can be made up for the appropriate flights. In view of the high degree of confusion that can accumulate even in the most 'sophisticated' multi-level terminals at even a small degree of overloading, one cannot help wondering whether a relatively cruder-and thus more adaptable-instrument, such as this, may not have virtues that would bear investigation before more European and American public money is invested in monuments of organizational complexity such as LAP or Idlewild.



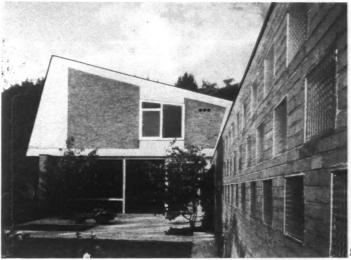
# THE DEILMANN HOUSE



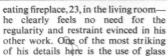


Prematurely, perhaps, the 'new' airport seems to have achieved an international norm. The project team of Arana, Orrego, Torres, Bao and Vasquez have produced for the new airport of Lima, Peru, a project that is clearly in the manner of St. Louis, Gatwick or Malpensa in its basic conception, if not in detailed form. The sketches reproduced in *El Arquitecto Peruano* (276-8, 1960) show a complex consisting of a broad concourse building, planned on a generous scale for the amount of traffic envisaged, 19, topped by an office/control tower, with

a covered entrance from a substantial parking area, and two fingers running out symmetrically on to the apron. So far, an entirely conventional solution, even to the public viewing areas on the roof of the concourse and the fingers, but the section involves a drastic simplification of the increasingly complicated multi-level layouts that are becoming the rule. A ground level perspective, 20, will show that the concourse is little more than a sun-shading lid and that the fingers run-not above the tarmac to facilitate truck circulation beneath them-but

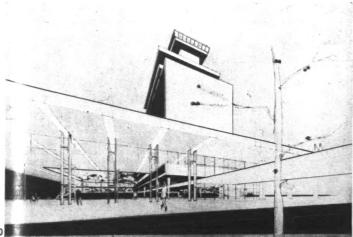


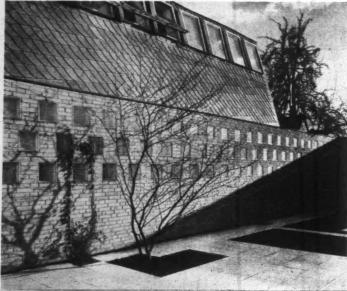
The manifest rationalism of Harald Deilmann's large scale works, such as his Nordwest-Lotto (World, February, 1961) clearly does not apply to his more private work, such as his own house near Munster, 22. This is not to say that the house is irrational—presumably he knows how the Deilmanns want to live and work—but in detail after detail, such as the tiling of roof on the garden side, 24, or the man-



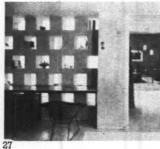




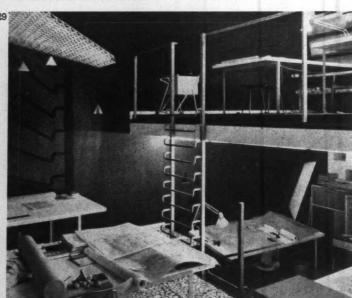




## Deilmann

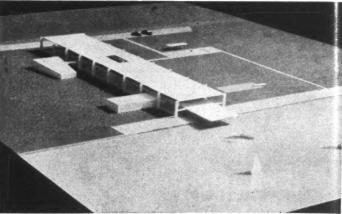


bricks in a regular pattern in a brick wall, 25. Primarily this is to give privacy to work-spaces without robbing them of natural light, as the plan shows, 26, but at one point it must have a more ambiguous function where the architect's own office combines working and family spaces, 27. Although it is not mimediately clear from the exterior views, the drawing-office wing has a monopitch roof of the same inclination as that over the house, providing a split level drawing-loft for agile assistants, 29 (and section 28.)



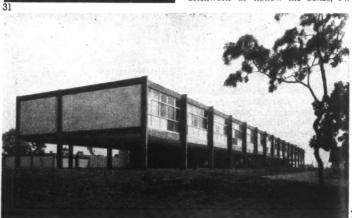
# SQUARED -UP IN BRASILIA

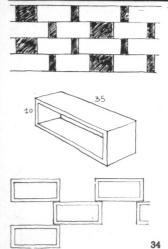
Niemeyer's Development Palace project (World, March, 1961) looks is if it may be only the first swallow of a square summer in Brazilian architecture with the prospect of Brasila looking intolerably, sloppily, oll-fashioned even before it is completed. His proposed Tennis Club there, 20, continues the squared-up constructivist trend and was published by Modulo (21, 1960) on the pages immediately following the publication





of the positively Smithsonian rehabilitation-centre, 31, 32, also in Brasilia, by Glauco Campelo. To be fair to Campelo, this apparent brutalism is only apparent—the exposed frame is in dark-aggregated bush-hammered concrete, not steel; many of the façades present unmistakably the aspects of the Brazilian Modern Vernacular as we know it, 33, with its walls of gapped brickwork or hollow tile boxes, 34.







Even so, we appear to be faced with a Miesian trend, about whose origins and precise meaning in the Brazilian context one would like to know much more. Particularly, one would like to know which bears with greater weight—the pressure of a fashion from abroad, or the revulsion from a fashion at home, with the proviso that Campelo (and probably every other architect involved) can doubtless find watertight functional explanations for what has happened.

# views and reviews

## MARGINALIA

#### WINDSOR WITHOUT THE WALLS

The latest in the Civic Trust's series of face-lifting operations, in which slop-keepers and building owners, as will as the local authority, are helping to co-operate in improving the street scine, is at Windsor. As at Norwich (AR, May, 1959) and Burslem (AR, Dicember, 1960) the Civic Trust's role has been to co-ordinate the work with the help of local architects.

The streets involved are Thames Street and Castle Hill, but the Windsor scheme, which was opened by the Queen last month, included one additional and unusual improvement: the removal of the modern barrier walls at the foot of the grassy slope on which the castle itself stands. It was a long process persuading the Ministry of Works and the local authority to sanction this improvement, which was

completed just in time for the Royal opening with the help of volunteer student labour.

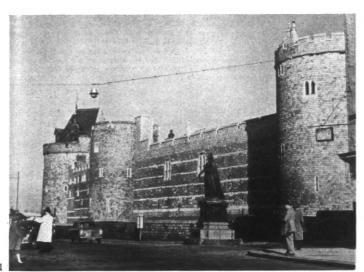
As part of the process of persuasion the Civic Trust prepared the accompanying photographs showing the scene as it was and as it would be with the walls removed.

#### STEPNEY CHURCHES

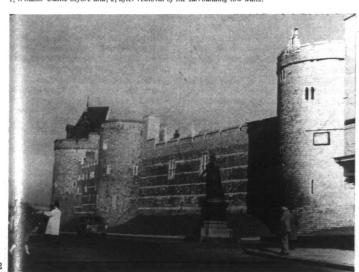
The state of Hawksmoor's superb Anglo-Baroque churches in the East End of London is causing grave alarm, and the sum of money required to restore them and make good generally (estimated at £200,000 at least) is beyond the capacity of the church authorities. But St. Anne, Limehouse, Christchurch, Spitalfields, and St. George-in-the-East are far too important as history and far too good as architecture to be allowed to perish by default. A fund has been started for their restoration (which the Diocese of London is prepared to undertake if the money is forthcoming) and subscriptions or enquiries should be directed to John Betjeman, c/o British Linen Bank, Threadneedle Street, London, E.C.2.

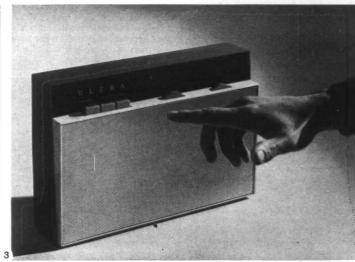
#### DESIGN AWARDS 1961

A more tough-minded attitude on the part of the jury for the 1961 Design



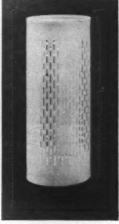
1, Windsor Castle before and, 2, after removal of the surrounding low walls.





Three products which received Design Centre Awards this year: 3, Ultra transistor radio; 4, folding chair by Ernest Race; 5, litterbin by G. A. Harvey & Co.





Centre Awards has resulted in a change of type of product honoured, as well as an upgrading of general quality. No soft furnishings, wall or floor coverings appear in this year's list, nor pottery or table plastics. Technical and mechanical equipment gets a stronger showing this year-domestic boilers, slide projectors, adaptable light fittings, and a transistor radio by Ultra, 3, which is awarded the Duke of Edinburgh's Prize for Elegant Design. On the other hand, something like the Functional Tradition has been honoured in a carving set by Wostenholm's, of Sheffield, an extremely simple stand mirror by Peter Cuddon (designer, Colin Beales), and the latest version, 4, of Ernest Race's folding chair for shipboard and outdoors.

An award which one hopes was made pour encourager les autres, as well as on intrinsic merit, is that given to one of Harvey's litterbins, 5, but otherwise street furniture is not represented. The generally brisker tone of this year's awards, and their avoidance of products which, if handsome, are open to functional doubts, will hearten the Council of Industrial Design's critics quite as much as its supporters-the jury did, in fact, voice some minor functional criticisms of the Ultra radio, but they were very minor indeed, and the fact that they were by no means as radical as those that have been expressed about earlier award winners is a

hopeful sign that a tougher choice can now be matched by better products.

#### RIBA DRAWINGS

The better public knowledge the RIBA's collection of historical drawings, inaugurated by the Chatsworth-Devonshire catalogue (reviewed on page 299 of the May AR) is extended to a less specialized public by the subsequent publication, again through the agency of Tiranti, of an excellent five-shillingsworth of reproductions of some fifty-odd prize pieces from the collection. Their range is wide, including one late medieval sheet and a Rubens, at two of its extremes, an early Inigo Jones and a Lutyens at the others. There are a number of surprises, such

6, design for carved frieze of chimney-piece, by Philip Webb, from the RIBA collection.



#### views and reviews

as a Philip Webb design for decorative carving, 6, a magnificent Daniell drawing of Hindu Temples at Agori, 7, and a stirring Thornhill decorative scheme complete with iconographical notes, 8. The riches and resources of the RIBA library are not fully appreciated even by specialists—one suspects that they were not fully appreciated even by the RIBA until John Harris and Prunella Fraser got to work on them, and began the monumental task of cataloguing. Now, however,

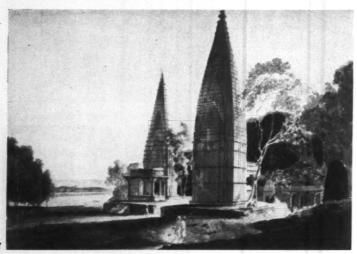
specialist and general reader alike are beginning to get some idea of what a wealth of material there is, and to have their appetites whetted for—one hopes —a more active programme of exhibitions in Portland Place.

#### CORRESPONDENCE

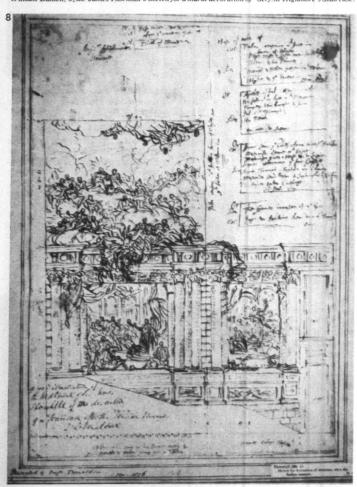
THE FOUR FAILURES
To the Editors.

SIRS,—Ian Nairn's assessment\* of

\* In his article, 'The Four Failures' on specbuilt housing in the March, 1961, AR.



Two more drawings from the RIBA collection: 7, Hindu temples on the River Son, by Thomas and





The main banking hall of Barclays in Birmingham, 9, has recently been restored and put in good order by the staff architects of the premises department of Barclays Bank. One of the handsomest surviving Victorian commercial interiors in the Midlands, it was designed in 1873 by Yeoville Thomason, and the present sympathetic restoration and refurnishing is some amends for the disappearance of Thomason's original exterior, which was refaced and altered in 1928. It will be noted that the new work does not ape the style of his original detailing, but does employ the kind of materials that would have been used in furnishing it at that date—black leather upholstery, slate, brass or ebonized trim on mahogany.

the present dreary lifelessness of most of our housing estates, together with his various proposals for improvement, is a very welcome piece of thinking. He writes that 'Life must be taken out of its sterile compartments and remade whole again.' This could well be a motto, printed large, to hang over the drawing boards in every architect's and planner's office.

How refreshing, also, to find a good deal of the blame placed fairly and squarely on the shoulders of the architect. However, I think that one of the important points made is questionable. Ian Nairn thinks that the failure in the relationships of elements is due to an inability to replace the unconscious and instinctive by a conscious act of judgment. But why should instinct in finding pleasure-giving relationships be merely a happy quirk of the past, denied to present generations? Surely, the key to the whole problem lies in feeling. The creation of an amiable environment must be the result of deep feeling on the part of the designer. Apply conscious acts of judgment by all means, but with emotional warmth behind them, not cold-headed intellectual detachment. This feeling for design (unconscious or instinctive, call it what you will) is as possible for us to-day as it was for a lucky few of our great-grandfathers.

The failure to produce a living environment is largely an emotional one. After all, even the gloomiest client or committee (a favourite scapegoat, this last one) may be whipped up by a bit of enthusiasm, should the designer really care enough about his proposals. To create some arbitrary divisions

where no clear-cut boundaries exist, emotional failure on the part of the designer to create an environment with some 'go' in it falls under one of three main types.

1. In the first case, the designer may be so neurotically involved with the planning problems confronting him that any reasonable solution is impossible. To take an extreme example, someone suffering from acute claustrophobia is unlikely to plan a satisfactory urban enclosure. On the one hand, his plans may tend to have a wide-open prairie look about them; on the other, he may be attempting to compensate his irrational fears by producing arrangements on paper that are so chaotically cramped as to verge on the impossible.

2. Secondly, the designer may think in the direction of having the right ideas, but his thoughts never get out of his head. Immediately pencil touches paper, timidity sets in. Narrow gaps become just that little bit wider, and inspiring unconventional features disappear altogether. Everything is watered down towards mediocrity, or else attention is focused on detailed design at the expense of the overall lay-out. There is much talk, the big ideas are bandied around, but there is little action. Behind all this is a largely irrational fear of Authority. in the guise of innumerable father figures wielding big sticks. What will they say about a display of originality Why, one might even become the centre of protracted attention, and tha wouldn't do, would it? The lamentable reality of the situation is, of course that Authority itself, fearing yet othe

Authorities, often feels very insecure, and is possibly open to some masterful, forthright handling.

3. Thirdly, there is the designer who does not even begin to think. Incapable of much stimulation, he passively churns out material that repeats all the mistakes of past and present, so stunted is his initiative.

Fortunately, most designers, I think, fit into the second category, in a more or less degree. We all want stirring up, and the more Ian Nairns there are to stir us up the better. Long live the ice-cream van chimes!

> Yours, etc. JAMES H. CHADWICK.

Nottingham.

To the Editors.

Sirs,-Mr. Nairn's article on speculative building in your March issue is often sensible but at times there are extraordinary lapses. For instance when he says the ice cream chimes are 'often the only sign of life in a square mile or so and, dear God, some people want to stop them.' To me the chimes are not a sign of life but of death. These frozen lumps of lard have the rigidity of death and represent the half-hearted attempts of guilty parents to buy a substitute for parental affection for their unfortunate offspring. Unable to love their children, they buy them ice cream instead.

What Mr. Nairn means by the only sign of life, I don't know. If he means noise, then I can only say he has obviously never lived on an estate himself. The bad layout inevitably forces the children to play in the street since the back gardens are devoted to cabbages and the front gardens are too small to serve any useful purpose whatever. The result is that until the darkness brings some measure of relief, the unfortunate people who live in these places have to put up with the shrieks and shouts of noisy, energetic children kicking plastic footballs about the street. Apart from this, there is always the radio which may attack you from any quarter-from next door, from across the street, from tradesmen's vans. At night you sit in the back room and try to read to the accompaniment of the neighbour's television as the sound waves percolate steadily through the thin partition separating one half of the semidetached dream house from the other.

Mr. Nairn says he is not trying to make out that life on a housing estate is hell on earth. There is no need for him to do this, as people who live in these places know that it is hell. Not that they all know it. Many of them know very little about anything except frozen lard and bottle fed babies and ndependent television; but people who have any glimmering of awareness know it, and being in a minority, there s very little they can do about it. They are the tormented souls who live in a provided for them by spec builders, weak planners and the big inancial mass culture boys catering or the lowest common denominator.

Why Mr. Nairn has to bring God into the argument, I do not know. If ever there was a godless desert it is the modern housing estate.

> Yours, etc., WILLIAM BLATCHFORD.



The newest Le Corbusier building, following after the fifty years of work celeb his Assembly Building at Chandigarh, a recent progress picture by the American photographe Frank Stanton

To the Editors.

Sirs,-Mr. Nairn's article on speculative housing has exposed most of the influences which produce this horrid growth, but I would suggest one other cause. The majority of houses are produced by builders working with borrowed capital and a small profit margin. Interest charges and overheads are a serious consideration and success depends on speedy turnover. A planning application for the usual uninspired layout of semi-detached houses will almost certainly get prompt onemonth approval. Any unusual layout, however good, will at best get bogged down in two-month deferment for discussion of detail, and in many cases permission will be refused. This may be reversed on appeal, but at the cost of another six months. Most builders know this only too well. They cannot afford to waste months and it is difficult to see why they should be expected to bear the cost of pushing improved layout through an inefficient planning organization.

Anyone who has had the good fortune to work with a creative planning officer will know that a great deal can be accomplished very quickly, but unfortunately many planning officers either lack understanding of layouts outside the '30 ft. building line, 3 ft. side passage' or else they are utterly unable to influence their own committees. Above all, they lack a sense of urgency and do not realize that for a builder time is expensive. Any commercial concern which operated at the speed of the average planning authority would soon go bankrupt.

Further difficulties arise in any imaginative layout because of antiquated bye-laws. So far as I can see from the plans shown, the housing schemes at Kirkcaldy and Prestonpans, illustrated in your 1961 January Preview number, would not comply with the model bye-laws as interpreted in southern England. It does seem as if the entire machinery of building control is deliberately aimed at the production of Subtopia.

> Yours, etc., R. R. HAGGARD.

Wallington, Surrey.

# **BOOK REVIEWS**

#### THE POETRY OF LE CORBUSIER

LE CORBUSIER—MY WORK. Translated by James Palmes. Introduction by Maurice Jardot. Architectural Press. 84s.

As Maurice Jardot says in his introduction to this volume, Le Corbusier 'has known (and still knows) incomprehension, hostility, betrayal and, worse still, gross injustice.' Admittedly Le Corbusier is not a man to suffer fools gladly, and as fools of one kind or another are rather plentiful among the people an architect has to deal with, it is easy to get a reputation for aggressiveness, egoism, complacency, and especially 'a somewhat bleak attitude of mind making no allowances for doubts and shades of opinion.' This, however, is the front Le Corbusier turns to the enemy, and, as M. Jardot goes on to say, and as all who know him well can confirm, 'The "Corbu" of his friends is quite different; argumentative and ironical, at times, certainly; but exquisitely kind and perceptive, although sometimes concealing this behind a rather gruff exterior: the modesty of his behaviour. the respect which he shows to the views and opinions of others, and the attention which he gives them, are always exemplary when he is with people who, he knows, appreciate and like him."

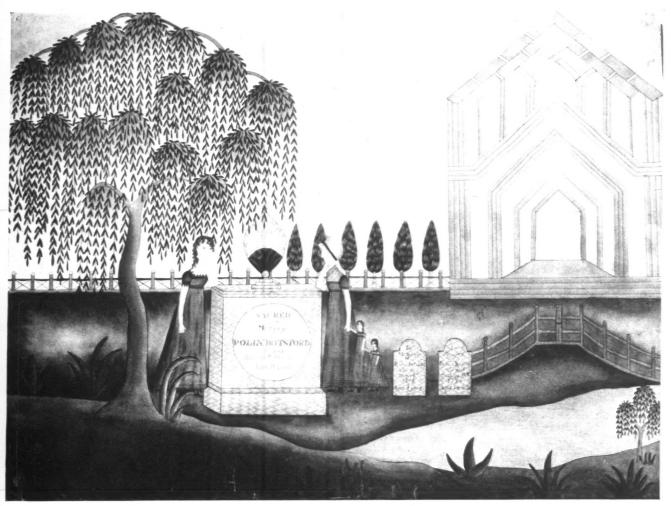
M. Jardot does not attempt to disguise the bitterness that remains at the end of a life so full, so happy and so dedicated; for much as Le Corbusier has accomplished, universal as his influence has been, the final impression is one of lifelong frustration. It is perhaps a fate so unjust that inspires so much affection and devotion in his friends and pupils. The bitterness, as Maurice Jardot says, has come to him from others, 'from the invariable and endless difficulty of getting evidence admitted which is contrary to custom; but that is the inevitable lot of those who influence the course of history, who follow the slope, but in an upward direction; we may deplore it, but we cannot be

surprised.' (Perhaps, after so much quotation, this is the place to comment on the exceptional excellence of the translation of the texts in the volume, which we owe to James Palmes.)

The volume under review is an 'album,' by which I mean not exactly a family album, but the author's own pictorial record of a career that begins in the 'homeland' of La Chauxde-Fonds in the Jura, where the Jeanneret clan had its roots among the clock-makers and the peasant-craftsmen, and where Le Corbusier from thirteen to seventeen years old had the tool of the watch-case engraver in his hand, or the goldsmith's hammer and chasing-chisel.' The facts of his life from then onwards are given in lively diary form with illustrative sketches and photographs. There are revealing and inspiring travels in the Balkans, Turkey, Asia Minor, Greece, Italy and then the arrival in Paris in 1919. Drawings, always drawings and paintings-always the visual approach, but visual poetry, blossoming into buildings, paintings, frescoes, townplans, poems, manifestos. Reality, he discovered, had nothing in common with books of instruction. L'Esprit Nouveau was founded, and the pseudonym Le Corbusier was adopted. The campaign had opened, a banner raised: 'Architecture is the masterly, correct and magnificent play of masses brought together in light.' The first pavilion of L'Esprit Nouveau was erected at the Exhibition of Decorative Art in Paris in 1925, 'in face of implacable hostility.' In 1959, after fifty years 'occupied with many adventures and difficulties, catastrophes and from time to time success,' Corbusier was still affirming: 'My cities are green cities. My houses give sun, space and green.' But in 1960 he has sadly to repeat what he had said at Buenos Aires in 1929: l'académisme dit Non!

The most damning indictment that any future civilization will bring against the first half of the twentieth century is that it lacked the courage of its artists, above all, of its architects. It is easy to attribute this disgrace to capitalism and the profit motive, but it lies deeper than that. Moscow and Peking show that same basic timidity. There have been gleams of light in the United States and Brazil, but the visual panorama of the whole world is chaotic. Le Corbusier has not been alone in his frustration—the lives of Wright, Mies van der Rohe, Gropiusall illustrate the same fragmentary achievement, the same frustration by human stupidity.

That stupidity, in my opinion, can be defined. It is a rejection of poetry, a masochistic denial of visual delight. and is a product of industrial alienation, a denial of the richness of nature, our own internal nature as well as external nature. 'My research,' Le Corbusier declared two years ago, is, like my feelings, directed towards what is the principal value in the life: the poetry. Poetry is in the heart of man and is the capacity to go into the richness of nature.' How can poetry be restored to life? That has been Le Corbusier's preoccupation for fifty years. He has shown the way. It is for others to follow in that second industrial era 'which will be the era of harmony and is only just beginning.'





Thomas Hork. And 30. March 29 non Julia Ann & Yeck. 1. may in haries Cherto. And 26 Augus 23 non

The American scene depicted by untrained hands. On the facing page: two examples of naïve
early nineteenth-century American painting
belonging to the Abby Aldrich Rockefeller Folk early nineteenth-century American painting
belonging to the Aby Aldrich Rockefeller Folk
Art Collection at Williamsburg, Virginia, but
temporarily to be seen at the Museum of
American Art at Claverton Manor near Bath.
This new museum, which opens on July 1, is
the subject of an article on page 420.
The paintings are: top, a mourning picture
(Polly Botsford and her Children), artist
unknown, c. 1818; bottom, The York Family at
Home, by Joseph H. Davis, 1837. Davis painted
in a number of small towns in Maine and New
Hampshire.

# Peter Collins ASPECTS OF ORNAMENT

entralis escalar de la Colon de Conservanta de la Colon de Colon de Colon de Colon de Colon de Colon de Colon La Colon de Colon de

All architects agree that architecture is something more than just plain, honest, straightforward building, but it is becoming increasingly doubtful, as the variety in contemporary monumental buildings increases, whether they agree as to what that 'something' is. It is clear, for example, that many buildings serving the same function, such as the latest university buildings constructed in England and America, have little in common with one another (apart from the use of modern building technology) except 'the rejection of the trappings of the historical styles'; that stirring but superannuated war-cry which was the inspiration of the early pioneers. But whereas the importance of these buildings is widely accepted, and their architectural qualities frequently discussed, the nature of the factors which differentiate these qualities from purely technological qualities has yet to be unequivocally defined. It cannot be simply a matter of good proportions, because proportion has little relevance to Giedion's theory concerning the Interpenetration of Space, whether it be Baroque space or Cubist space. Moreover, it is clear from at least two recent competitions (the Sydney Opera House and the Toronto

City Hall, where the proportions of both winning entries have had subsequently to be considerably modified because of the structural inadequacies of the original designs) that proportion is not considered an important criterion. The distinction must therefore lie in something else.

In the nineteenth century, the majority of theorists had no doubts whatsoever about the nature of this distinction, since they generally agreed with James Fergusson that architecture was 'nothing more or less than the art of ornamented and ornamental construction.'1 The problem which obsessed them was to decide what was the correct type of ornament. There were, of course, one or two eccentrics who rejected the idea of ornament altogether. J. N. L. Durand had insisted, at the beginning of the century (when the French state was in fact too poverty-stricken to ornament new public buildings even if it wanted to), that beauty in a building resulted naturally and necessarily from the most economical structure imposed on the most economical plan. Horatio Greenough, still smarting over the rejection of his nude statue of George

1 James Fergusson: A History of Architecture (1865), vol. 1, p. 9.

Washington, similarly insisted on the total rejection of ornament, and used arguments which were later to be employed by Adolf Loos. But the nineteenth century in general approved unquestioningly the desire for ornament, which Owen Jones, for example, believed 'must necessarily increase with all peoples in the ratio of the progress of civilization.' As a result, ornament, far from being rejected by the leading architects, became more luxuriant and more extravagant as the century proceeded, until it culminated in the rich overall surface decorations we associate with the nineteenth-century buildings of Louis Sullivan and Frank Lloyd Wright.

Curiously enough, the problem which occupied the most thoughtful and progressive mid-nineteenth-century theorists was not so much concerned with the nature of ornament as with the nature of plain straightforward building. Two answers were put forward; the first, making use of an analogy with literature, claimed that plain building was comparable to vernacular speech; the second, making use of no analogy at all (a singularity at a time when analogy seemed to most theorists to be the only alternative to archæology) claimed that plain building was nothing

more nor less than civil engineering itself. The belief in the virtues of 'vernacular' structures was the basic tenet of the Queen Anne Revival, first proposed exactly a century ago by the Rev. J. L. Petit, a well-known belligerent of the Battle of the Styles, and probably inspired by Scott's Remarks on Gothic Architecture (1858), where the relationship between 'vernacular domestic architecture' and the ecclesiastical architecture of the thirteenth century was fully discussed. At a lecture given in May 1861, he suggested that if his audience were to look at the best monumental buildings of Queen Anne's reign, they would see that these were simply vernacular buildings plus ornamentation of a very appropriate kind. As a result, they harmonized with the character of the houses men built when they built without reference to style, and were guided solely by the consideration of their own requirements, the state of society, climate and materials.3 It was a style, moreover, which was perfectly suited to the wants of their own day; 'expressive, or capable of being made expressive of the spirit of the age; and sufficiently comprehensive to embrace both vernacular and monumental works, and that large class which partakes of both characters.'4

The significance of this proposal, as far as more recent developments in architecture were to be concerned, was threefold. Firstly, it deliberately broke through the archæological barrier which in England and America had separated architecture from life for nearly a century, and substituted the idea of selecting

architectural forms on the basis of their appropriateness, and according to the designer's unfettered choice. The Queen Anne period was taken as a suitable precedent because many buildings constructed then were characteristic of what Sir John Summerson has called 'artisan mannerism'; the unsophisticated mixing of various tectonic and decorative elements without that antiquarian pedantry which in the following reign so often typified the architecture of Palladianism. Moreover the Revival itself went even further; it often employed motifs that were not eighteenth-century at all, but more strictly Jacobean. In other words, the 'Queen Anne' style in England was really the equivalent of the 'Francis I' style in France, when Renaissance decorative motifs were applied undogmatically to freely-planned compositions (as on the Francis I wing at Blois) without strict reference to antique precedents or rules.

Secondly, the Queen Anne Revival introduced into England the philosophical notion of Eclecticism. This word is frequently misused to signify an indiscriminate use of styles, such as was exemplified by those architects who designed Palladian buildings one day and Gothic buildings the next without any apparent misgiving. In this sense, it corresponds to what theologians more correctly term 'Indifferentism.' The true meaning of Eclecticism is defined in the Encyclopædia Britannica as 'a composite system of thought made up of views selected (εκλέγω) from various other systems', and it was in this sense that it was proposed by César Daly in the Revue Générale de l'Architecture in 1858.5 The idea undoubtedly stemmed from Victor Cousin's series of lectures entitled The True, The Beautiful and The Good, published five years earlier, in which the historical method was applied to philosophy in the same way that Darwin was then applying it to biology and architects were applying it to architectural design. Victor Cousin claimed that one should not pedantically accept any one philosophical system to the exclusion of all others, but decide rationally and independently what philosophical facts were true, and then recognize and respect them in whatever historical contexts they appeared. The history of philosophy thus became, he asserted, 'no longer a mass of senseless systems, a chaos, without light, and without issue; but in some sort a living philosophy.' If, in this sentence, we substitute the word 'architecture' for the word 'philosophy,' we have the basis of the theory proposed by César Daly, elaborated by Guadet, and still taught in most of our schools.

Thirdly, it introduced the notion that the basis of a living architecture was, in J. L. Petit's words, 'our ordinary or vernacular architecture.' The important effect of this on subsequent architectural theories cannot be exaggerated. In the first place, it undermined the old idea of relating monumentality to

<sup>2</sup> Owen Jones: Grammar of Ornament, first sentence of chapter 1.

At required a theorist who was not a professional architect to perceive the importance of this characteristic of vernacular building. Another thoughtful layman, Dr. John Robison had remarked on the same thing in his lectures on Mechanical Philosophy given at Edinburgh University at the end of the eighteenth century. In the simple unadorned habitations of private persons, every thing comes to be adjusted by an experience of inconveniences which have resulted from too low pitched roofs, and their pitch will always be nearly such as suits the elimate and covering. Our architects, however, so to work on different principles. . . . . We cannot help thinking that much of their practice results from a pedantic veneration for the beautiful products of Grecian architecture. . . Since stone is the chief material of our buildings, ought not the members of ornamental architecture to be refinements on the essential and unaffected parts of a simple stone-building? (1822 ed. p. 555).

<sup>4</sup> The Builder, vol. xix, p. 351. The fact that this idea was put forward very soon after the Battle of the Styles (i.e. the Foreign Office Competition controversy of 1857-59) is clearly of great importance when assessing the significance of the Queen Anne Revival. In the soic authoritative monograph on this subject (AR July 1943, p. 16) Dudley Harbron was only able to trace the term back to 1874. The first Queen Anne Revival building, according to Professor Hitchcock, was the lodge at Kew Gardens, dated 1867.

<sup>\*</sup> This as Professor Pevaner has kindly pointed out, is contemporary with Scott's correct use of this term in his Remarks on Gothe Architecture (p. 265), published in the same year. But whereas Scott demanded unity of style (i.e. based on thirteenth-century Gothle) and believed that Tike all genuine styles, the style of the future must have its roots in the temple (p. 273), the essence of Daly and Potit's advocacy was to disregard architecture for the temple (p. 273), the essence of Daly and Potit's advocacy was to disregard architecture for in the temple (p. 275), defined it rather differently from both and in a way typical of classical rationalist thought. An eclectic, he wrote, is a philosopher who treads underfoot projudice, tradition, seniority, general consent, and authority, and ... goes back to the clearest general principles, examining them, discussing them, and accepting nothing except it he on the evidence of his own experience and reason. We may compare this with the remark of J. F. Blondel (who contributed the articles on Architecture to the Encyclopedie): The anotents can teach us to think, but we must not think as they did. ... (Cours, Oli, p. 17).

tecture a predominant influence over architectural theory. Thus the houses designed by the pioneers of modern architecture became the most influential means by which new forms and ideas were introduced. In the second place, it challenged the Italian Renaissance doctrine-introduced into architectural education in 1806 with the foundation of the Ecole des Beaux-Arts—that architecture was essentially one of the three Arts of Design; for by insisting upon the analogy between architecture and literature (in which composition also makes use of a vocabulary of standardized elements), it separated the theory of architecture from that of sculpture and painting; arts in which, as Susanne Langer has observed, a vocabulary of elements plays no part. Lastly, it established the doctrine that this vocabulary must consist of tectonic elements corresponding to what in traditional structural systems are called 'vernacular'; a name used because the elements were established by local craftsmen on purely practical grounds, and assembled in accordance with the requirements of functional plans.

The only problem to decide was what, in the 1860's, corresponded to 'vernacular' building, and it is to James Fergusson's credit that he seems to have been the first to perceive that the supersession of traditional building materials and techniques by the new materials and techniques of the Industrial Revolution was precisely the reason why any New Architecture was really necessary at all. The new vernacular, he said, was to be found in the works of the engineers, since these were the people who now followed 'the commonsense principles which guided builders in all previous ages.' If the architectural profession were to be properly organized, the engineer would merely be 'the architect who occupied himself more especially with construction and with the more utilitarian class of work.' whilst the architect, properly so called, would be 'the artist who attended to the ornamental distribution of buildings, and their decoration when erected.'6

The fact that no New Architecture appeared until the very end of the nineteenth century, despite the hopes placed in frames of cast and wrought iron, was a result of the fact that no radical technological innovation was economically utilizable as a complete structural system until steel frames and reinforced concrete frames (i.e. frames in which the vertical as well as the horizontal members were resistant to tensile stresses) were introduced after 1880. Even then, the need to cover steelwork with fire-resistant faience, and the difficulty of making concrete surfaces homogeneous, encouraged an even greater use of ornament, whilst providing the most convincing justification for separating the concept of ornament from that of the structure which it concealed. But between 1900 and 1950 a highly complex and varied vocabulary of new and elegant structural components was gradually evolved, until at the present day the nineteenthcentury dream of a new tectonic 'vernacular' has become a reality. The problem now is: has this vocabulary become so rich that architecture can be produced by merely combining these tectonic elements into the most rational and economical arrangement

temples and churches by giving minor domestic archi- required by a particular programme, or does the essence of architectural composition still consist of honest straightforward building plus something else?

In the 1920's and 1930's, the pioneers of our own architecture seem to have had only a vague presentiment of the difficulties which this problem would eventually produce. In 1935, Walter Gropius accurately recorded that the 'first or rationalizing stage' of modern architecture was only 'a purifying process,' and that the ultimate goal was the 'composite but inseparable work of art, the great building, in which the old dividing line between monumental and decorative elements will have disappeared for ever.'7 But being unwilling, because of his rejection of history, to refer to any historical precedents, his only hint as to the nature of this new monumentality, of the differentia which would distinguish monumental architecture from just good plain building, was merely that it would be found 'in those simple and sharply modelled designs in which every part merges naturally into the comprehensive volume of the whole,'8 a definition which at best only paraphrases the standard classical aphorisms enunciated from the time of Alberti to that of J. F. Blondel.

Le Corbusier's early writings appear more helpful, since he not only distinguished between the 'engineer's aesthetic' (which produces only harmony) and the 'architect's aesthetic' (which produces both harmony and beauty), but made specific recommendations as to how this beauty was to be attained. Yet even Le Corbusier's speculative contribution has turned out to be largely illusory, for he has now abandoned his early system of 'regulating lines' (which was in fact little different from the standard method of proportioning then used at the Ecole des Beaux-Arts), whilst his latest buildings clearly owe nothing to the machineprecise profiling, or modénature, which he recommended as exemplified in the Parthenon. Towards a New Architecture, with its constant appeal to the authority of ancient temples and churches of various historical periods, in fact made little methodological advance on nineteenth-century Eclecticism, whilst his deliberate omission of Gothic monuments brought the historical basis of his theory completely in line with

that of the devotees of Queen Anne.

Probably the only really frank examination of this problem within the last century has been that formulated during the Queen Anne Revival itself by Robert Kerr, professor of the Arts of Construction at King's College, London, and one of the most caustic critics of the architecture of his age. In a lecture given at the RIBA in January 1869, he put forward the view that since architecture was obviously just a dress by which the artist's pencil, like a magician's wand, transformed a structure from a dull lifeless piece of building into something eloquent, it ought more fittingly to be called the Architecturesque. This dress was constituted, he said, primarily by ornament, the desire for which, more than anything else, separated the intelligence of man from that of the lower animals, and urged him to strive after perpetual novelty. What people had been in the habit of calling 'the principles of architectural design' were simply the principles of

Walter Gropius: The New Architecture and the Bauhaus (1985), p. 44.

<sup>\*</sup> Ibid., p. 32.

architecturesque treatment. Good architecture was true architecturesque, bad architecture spurious architecturesque, and the means of obtaining both were fourfold: structure ornamentalized (or rendered in itself ornamental), ornament structuralized (or rendered in itself structural), structure ornamented, and ornament constructed.

Now preposterous as Robert Kerr's argument may seem, his terminology is not inappropriate to some of the more publicized monuments of to-day. There can be no disputing the fact that architecture is becoming increasingly 'ornament structuralized,' if not 'ornament constructed,' for the whole trend of Le Corbusier's powerful influence has been moving in this direction for some time, and is now bearing fruit on both sides of the Atlantic. Is Chandigarh an example of what J. M. Richards once called 'the sincerity which is at present architecture's special virtue, and the inevitability which it gets from its appearance being so closely related to its structure'?9 If so, we should examine carefully what we now mean by 'structure.' Or must we admit, to continue Richards's phraseology, that modern architecture is becoming 'merely decora-

tive, an imitation of itself?'10 It has long been recognized that the ideal of creating monumental architecture solely by the consideration of our own requirements, the state of society, climate and materials is quite impractical without some additional quality which, in fact, is nothing more nor less than the artist's creative intuition. This must either order, proportion, refine and embellish a basic economic structure and composition, or create shapes which greatly transcend the mere economical fulfilment of practical needs. But refinement and adornment were both included in what the eighteenth- and nineteenthcentury classical theorists understood by 'ornament,' as when the Abbé Laugier wrote: 'the flutings and other enrichments with which the sculptor's chisel charges different elements are true ornament, because they can be accepted or suppressed without altering the nature of the Order.'11 By rejecting the idea of 'ornamentalized and ornamented structure,' and disregarding the principle enunciated by Fénélon when he remarked (concerning the superiority of classical architecture over gothic) that 'one must never allow into a building any element destined solely for ornament, but rather turn to ornament all the parts necessary for its support,' we seem to have been led to adopt 'structuralized and constructed ornament,' and this charge was levelled against Le Corbusier and his friends as early as 1925: 'Nobody speaks now of anything but straight lines, essentials and construction; but if one looks closely, it is obvious that ornament is still the only thing that matters, so that there are finally more useless things than ever before. These useless elements are so rigid and bare that the uninitiated assume them to be necessary; thus the error is all the more serious for being dissimulated.'12

One cause of the present luxuriation in suspended concrete awnings and extravagant concrete roofs has lain, initially, I think, in too hastily rejecting nine-

teenth-century rationalist principles when discarding nineteenth-century imitative practices. As a result, all the leading post-1930 theorists except Mies van der Rohe threw away the baby with the bathwater. The great mid-nineteenth-century rationalists, such as Charles Barry in England, and Henry Labrouste in France, had applied the right principles to the wrong materials, an error for which they were hardly to blame, because the proper materials had not yet been perfected. But the twentieth-century theorists, following the lead given by Etienne-Louis Boullée a century before, not merely rejected superfluous ornament and the tyranny of past styles; they rejected also the classical definition of architecture as 'the art of building,' claiming that Alberti and his successors had foolishly mistaken the cause for the effect. They did not, like Boullée, preface their treatises with the words ed io anche son pittore, but they might fittingly have done so, for the principles they substituted were mainly concerned with light, shade and space.

Their reason for doing this must, I think, be obvious. During the nineteenth century, architecture had been brought into disrepute by the archæologists and antiquaries, whose wrangles had culminated in the Battle of the Styles. To avoid the same error, the theorists who tried to create a New Architecture sought to avoid all references to the history of architecture. But if one cannot theorize with reference to the architecture of the past, one cannot theorize about architecture at all. The only alternative is to rely in analogies. The French and English theorists of the nineteenth century sought analogies with biology, machinery, speech and, in at least one instance, gastronomy. But the leading German theorists of the twentieth century, perhaps through a Spenglerian fascination for 'space,' and a mystical attachment to the philosophical notion of 'architectonics,'13 preferred an analogy with painting, sculpture and industrial design, especially when these so conveniently

developed into 'abstract art.'

The theory of those who, pursuing the ideals of nineteenth-century rationalism, opposed this attitude, is not easy to define with certainty, because its exponents were usually taciturn men, who felt that a few epigrams were quite adequate to explain their work to those who really wanted to understand. But its general principles can, I think, be summarized under three headings corresponding to the planning, construction and appearance of buildings, or, if one prefers, to the Vitruvian categories of commodity, firmness and delight. As regards 'commodity,' they believed that since the purpose of architecture is to create useful, interesting, varied and harmoniously related spaces, urban architecture is superior to rural architecture because it not only defines indoor spaces, but also combines to create plazas, courtyards and streets. Thus, even when developing new cities, they were led to study the appearance of buildings in terms of contiguously aligned façades. It may be true that 'the basis of the Victorian view of architecture was as large-scale sculpture,'14 but such sculpture was not

<sup>\*</sup> J. M. Richards: An Introduction to Modern Architecture (1940), p. 13 of revised ed.

<sup>11</sup> M. A. Laugier: Essel sur l'Architecture (1755), p. xvl.

<sup>15</sup> Auguste Perret, quoted in L'Amour de l'Art (1925), p. 174.

<sup>22</sup> Cf. the quotations from Muthesius' Stilarchilektur und Baukunst (1902) given by Reyner unham on pp. 73-76 of Theory and Design in the First Machine Age: e.g. 'the re-establishment an architectonic culture is a basic condition of all the arts &c.' (p. 78). In this wide sense, e term is clearly a garbled derivative of the pomultimists chapter of Kant's Critique of Pure. erm is cle m (1781).

<sup>14</sup> J. M. Richards: ibid., p. 26.

thought of as isolated in a void, or seen from above, architecture, except the Italian Renaissance and the contemporary architecture, under the influence of the 'Queen Anne' tradition (which based its theory of a 'vernacular' architecture on suburban villas), and of Constructivist sculpture, were unable to conceive of architecture except as isolated elements, visible from all round; and it is typical of the confused reasoning in Towards a New Architecture that, although virtually all Le Corbusier's published domestic projects were designed in this way, the historical example he uses to support his views (namely a Pompeiian house) exemplifies exactly the opposite principle, in that here the exterior has no visual significance, and all the open spaces on the site are obtained by means of courtyards

As regards 'firmness,' the nineteenth-century classical rationalists realized that a minimal structure is not only unnecessary in small spans, but is probably incalculable, since the forces are so varied. Moreover, as Léonce Reynaud had pointed out, 'one must not conclude that all the parts of our structures must be submitted to the laws of mechanics, for it is evident that the prescriptions of science can lead to great difficulties of execution.'15 But they considered that there should be an economical correspondence between the forces to be resisted and the structure designed to resist them, 16 and believed, like Viollet-le-Duc, that 'Construction, for the architect, is the employment of materials with the preconceived idea of satisfying a need by the simplest and most solid means."17 At the end of the last century, and at the beginning of this, they used frames rather than elaborate cantilevers, because the leading building contractors had shown these to be the most economical way of erecting multistorey buildings when no question of aesthetics was involved. They were not unmoved by the sight of great halls built for international exhibitions, but they did not regard their roofs as structural paradigms for spaces of a fifth the span. 18 Similarly, they would have studied an engineer's architectural structures, rather than his bridges, if they had wanted to apply his principles to the problems they were studying themselves.

As regards 'delight,' the nineteenth-century classical rationalists believed that the only difference between architecture and plain, honest, straightforward building was that architecture was both sensitively proportioned and pleasingly detailed, whereas plain building was not. In this their ideas seem to have been in harmony with those of every other period of European

like Malewich's 'Architectonics,' but as contributing to German Baroque. If we compare an early stone cotton a perspective seen from the ground. The pioneers of mill (such as the mill at Curbar illustrated in J. M. Richards's Functional Tradition in Early Industrial Buildings) with any of the really important classical rationalist buildings in England, such as Charles Barry's Bridgewater House, we can see that the differences have nothing to do with 'the trappings of the historical styles,' but are simply due (apart from variations in size and plan, resulting from the difference of function) to the fact that the apertures and volumes are more carefully proportioned, and the surfaces more carefully worked. If we take the worst possible French example, namely Garnier's Paris Opera House (which even in its own day was criticized for its excessively Italianate Renaissance and Baroque polychrome ornamentation), we see that in the one part comparable in composition and plan to the mill at Curbar—namely the six-storey administrative office block which constitutes the northern end-a similar policy has been observed. And whatever one may say of the rest of the Paris Opera House, there is no doubt that unlike Boullée's or Utzon's designs for opera houses, this building can be clearly seen, by its compositional elements, to be a theatre, and by its detailing to be the most important theatre in the state. As J. F. Blondel once observed, the more accurately we can express the relative importance and function of buildings by this means, the closer are we to achieving 'that infinite variety between different buildings of the same type or of different types' which is the essence of style. 'Style, in this sense,' he explained, 'is like that of eloquence; it is the poetry of architecture.'19

The mid-Victorians, who hated insipidity, were usually over-fond of ornament (which they regarded as the natural expression of wealth), but even so, the best architects who pandered to their tastes realized that the essential difference between architecture and plain building lay not in complexity and extravagance (whether this be thought of in terms of construction or of the interpenetrations of space) but in proportion, refinement, and, if appropriate, adornment. As a result, their buildings have a scale and tactile richness which can only be appreciated by walking amongst them, and looking at them close to. The best urban buildings of the nineteenth century are seldom very interesting when seen from the air. They certainly have not the same compositional interest which models of important modern buildings usually possess. But at ground level they have a warmth and humanity found in the best architecture of all ages except our own, and this is becoming more and more obvious as old and new buildings become more frequently juxtaposed.

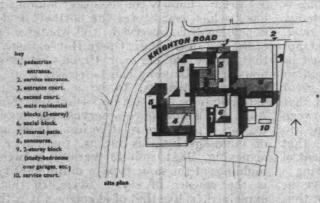
It is no longer possible to use the word 'ornament' in Alberti's sense of an 'auxiliary brightness,' because this word, thanks to Adolf Loos, is now regarded as obscene. But there is no virtue in banishing obscenity from our vocabulary unless we also banish it from our practices, and if we have no choice, as seems likely now, between ornamenting our structures or constructing abstract ornament, it is perhaps time we seriously revaluated nineteenth-century rationalism in terms of the potentialities of the second Machine Age.

<sup>17</sup> E. Viollet-le-Duc: Dictionnaire Raisonné de l'Architecture Française, XIe-XVIe siècle vol. 17, p. 1.

<sup>19</sup> J. F. Blondel: Cours d'Architecture (1771), vol. iv, p. lv.

The vast expansion of university education now taking place in Britain demands not only new teaching accommodation but a greatly increased amount of living accommodation for students, only a small proportion of whom can be—and perhaps should be—housed in lodgings. The accepted answer is the hostel or Hall of Residence, and nearly all British universities are now putting up buildings of this kind as near to the main university buildings as the difficulty of finding sites allows. Though some of these buildings are very disappointing architecturally—for example at Nottingham and Durham—several that show both original thought and quality of design have recently been completed. Two such buildings are illustrated on the following pages, both—as it happers—for women students and both exemplifying the tendency to plan buildings for this purpose that are a good deal more than mere dormitories; that are self-contained units with social as well as living accommodation, capable of giving them some of the character and resources of the residential colleges familiar in the older universities.

# TWO UNIVERSITY HOSTELS



# 1. COLLEGE HALL, LEICESTER

# architect, J. Leslie Martin (in association with Trevor Dannatt)

This is one of several halls, built or projected, occupying the large gardens of old houses in an inner suburb within easy reach of the central university buildings. It accommodates 170 students, a warden, bursar and academic and domestic staff. The dining hall is, however, capable of seating 250, so that undergraduates living in nearby university houses may dine in the hall.

The site slopes gently to the south; the north and west boundaries are skirted by a busy road and an enclosed type of plan was considered desirable.\* Three residential blocks enclose two linked courtyards. The social block is placed so that it forms the fourth side to both these courts. This arrangement makes it possible to build a third court if ever this should be desirable as an extension of a two-storey partly residential building for domestic staff, etc.

The residential blocks surrounding the courts are three storeys high and contain study-bedrooms of various types, but generally in the region of 115 sq. ft. in area. The buildings enclosing the courts have corridor access to rooms from staircases placed in the angles of the blocks. Wings running east-west have service rooms (bathrooms, wash-basins, w.c. and pantries, etc.) on

the north and south-facing rooms with balconies. Where wings run north to south there is a central corridor with rooms facing east and west and service rooms grouped at opposite ends of the corridor. There are no north-facing rooms. Rooms are planned in groups of eight related to service accommodation. Externally, and because of this plan arrangement, the enclosing walls of each court vary considerably; the north-facing walls contain little window space whereas the south-facing walls on the opposite side of the court are opened up by projecting the cross-walled load-bearing construction and providing balconies.

In contrast to the residential buildings (which are of load-bearing brick with concrete floors and flat timber roofs), the social block has a reinforced concrete frame to permit wide spans and to allow more freedom in planning. For visitors arriving by car, a covered way, leading to the entrance, extends along the north face of the building facing the first court, across which is the main access for pedestrians. The social building is planned round an open-ended internal court associated with the entrance hall. The social rooms are on either side of this patio and consist of a junior common-room and library to the west and the main dining-hall and senior common-room to the east. The upper floor of this social building consists of smaller self-contained units of accommodation with separate access: e.g. the warden's flat, rooms for the bursar and senior domestic staff, music-rooms, games-rooms, etc. These rooms are approached by public or private staircases and are planned as a series of roof pavilions cut off from each other by terraces. A large terrace outside the musicroom can be used for outdoor concerts.

External brickwork is a white sand-lime brick and the windows have varnished oregon pine frames. The timber fascias are zinc-faced. The concrete frame to the social block is left untreated from a plywood shutter. The lower part of this building is opened out by large windows and all the rooms at first floor level which form the roof pavilions are of light non-framed construction, consisting of timber mullions above cill level on the perimeter and load-bearing lightweight block partitions.

Consulting engineers, Lawrence Kenchington & Partners. Quantity surveyors, Monk & Dunstone.







1, from the south, with the social block on the right. 2, close-up of south elevation of a residential block.



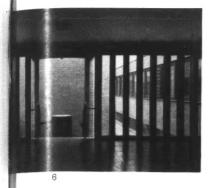




3, south-west corner of the social block; the library and senior common room are on the ground floor, with staff residential accommodation above. 4, view into courts showing repetition of south-facing blocks. 5, the social block from the west.

## COLLEGE HALL, LEIGESTER





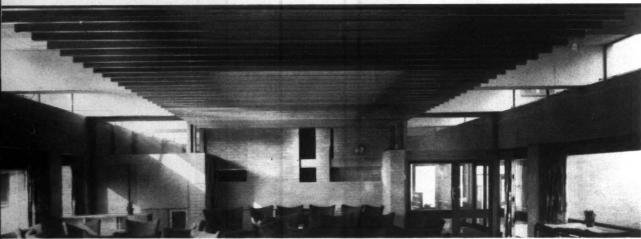












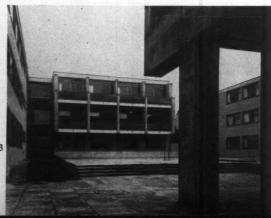
10, the enquiries desk in the entrance hall. 11, the fireplace in the junior common room. 12, general view of the junior common room.

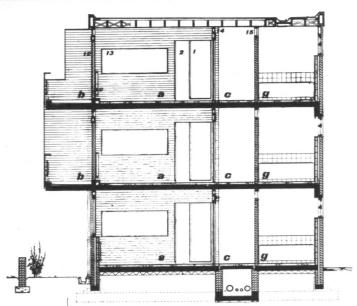
b, balcony.
c. corridor.
d. lobby.
e, washroor
f, w.c.

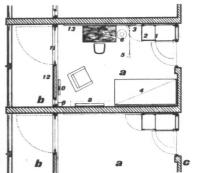
wardrobe,
 drawer unit.
 door with mirror and make-up tray.

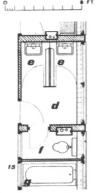
4, divan.
5, movable light.
6, movable standard lamp.
7, desk.
8, electric fire, bookshelves.
9, meter and time switch.
10, radiator.
11, glazed door in two leaves.
12, solid panel.
13, pin-up board.
14, ventilation shutter.
15, clerestory between cross walls.

13, residential block in the entrance courtyard (see plan and section on the right).





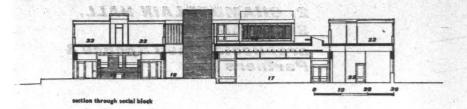




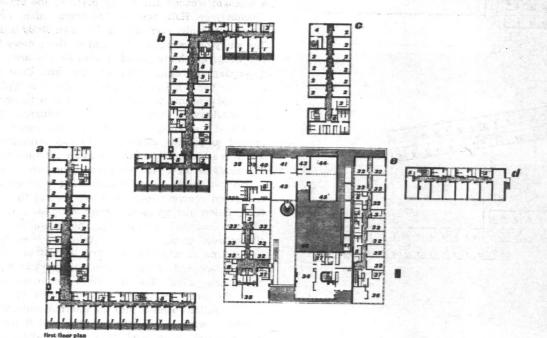
13







## OOLLEGE HALL, LEIGESTER

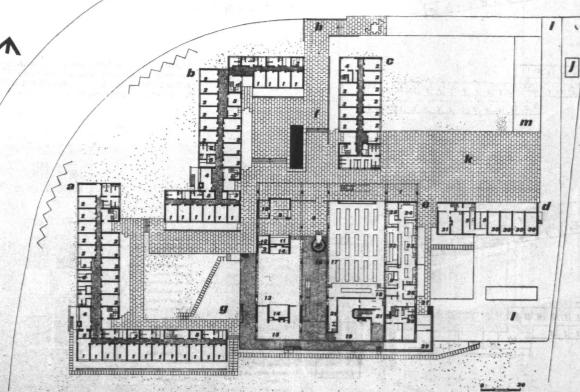


leay
a, b, c, d, residential blocks.
e, social block.
e, social block.
f, entrance courtyard.
g, second courtyard.
h, main entrance.
l, sarvice entrance.
l, sarvice entrance.
l, sub-stacton.
k, concourse.
l, m, parking.
l, nouth-facing study-bedrooms.
2. east-and west-facing study-bedrooms.
3. tas-making rooms.
4. ironing rooms.
5. stores.
6. ironing rooms.
9. entrance hall.
9. enquiries.
10. office.
11. shop.
12. dispensary.
13. junior common room.
14. fireplace recesses.
15. library.
16. pasio.
17. dining hall.
18. high tabla.
19. senior common rooms.
20. lobby and cloaks.
21. warden's entrance.
22. servery.
23. main kitchen.
24. wash up.
25. pantry.
26. bursar's office.
27. service entrance.
28. staff.
29. area.
30. garages
31. portress.
31. study-bedrooms (social block).
33. senior members.

33, senior members.
34, warden's flat.
35, deputy warden's flat.
36, bursar's flat.
37, domestic kitchens.
38, small library.
39, dark room,

39, dark room.
40, sewing room.
41, small junior comm
42, upper concourse.
43, practice room.
44, listening room.

45, recital room.
46, roof terrace.
47, roof lights over dining hall.



# 2111111111137 23411111111 Apple to the total to the land THE THE PERSON STATES 24 1 1 1 1 1 1 1 3 2 32 1 1 1 1 1 1 1 1 1 2829 AFFFFFFFFFFFFFF F. 31 1 24 7 5, 1, 1, 1, 1, 1 0 24 1 1 1 1 1 1 1 3 2 32.1111111323334 000000 40 AFF FF FF 27 20 20 5 1 1 1 1 1 1 7 8 8 9 21 2 34 1 1 1 1 1 1 6 10 11 12 13 . 15 FI

# 2. CHAMBERLAIN HALL, SOUTHAMPTON architects, Basil Spence & Partners

Sited adjacent to a small existing hall of residence on a pleasant wooded site to the north of the university, Chamberlain Hall provides accommodation for 150 women students, each having her own study-bedroom. The study-bedrooms are arranged on three floors in the two wings which are joined at one end by a lower block containing the dining-hall, kitchens, etc. Each study-bedroom has a built-in wardrobe and a dressing/desk/food cupboard-unit with shelves above it along one wall. The windows to these rooms are a composite unit in hardwood, including a fully glazed door which can be opened to provide maximum sun and ventilation but which is screened by a balcony panel to ensure privacy. The roofs of these study-bedroom wings are of copper.

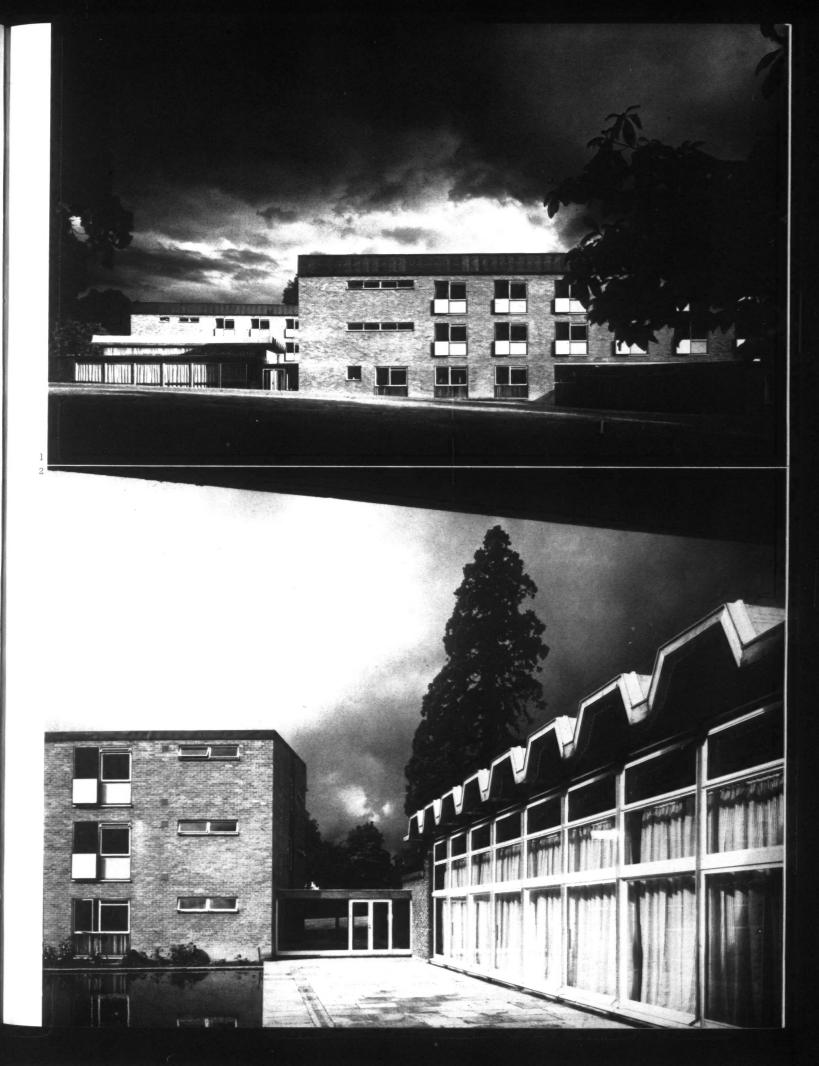
The two wings are of load-bearing brickwork with reinforced concrete columns along part of the ground floor. Below the windows, which have slate cills, are vitreous enamel steel panels. The dining-hall has a timber roof in the form of parallel inverted troughs, the outline of which is designed to contrast with the smooth face and warm tone of the brickwork of the three-storey wings. The view from the dining-hall and from the senior and junior common-rooms, music-room and recreation-rooms is into the internal court, which is furnished with a pool, paving, grass and flowers. The site possessed some good trees, which have been preserved.

Quantity surveyors: Reynolds & Young. Consulting engineers: Ove Arup & Partners. Services engineers: A. F. Myers & Partners.

Opposite page: 1, from the north with the refectory on the left and the warden's flat on the right. 2, the internal courtyard with the refectory on the right.

lety 19, kitchens. 20, was-up. 20, was-up. 21, senior staff dia 3, w.c.\*s. 22, staff dining roc 23, senior common 5, bursar's living room. 24, staff room. 25, warden's room 26, bursar and assistant bursar. 25, warden's flat. 26, warden's flat. 27, sewing rooms. 26, warden's flat. 27, canteen. 28, assistant bursar 10, entrance hall. 29, portreas. 11, music room. 30, maids' rooms. 31, vice-warden. 31, recreation room. 32, matron. 32, matron. 44, small common room. 32, assistant cook. 5, large common room. 34 cook.

34 cook, 35, sick room. 36, isolation room. 37, surgery.





3, looking along the east elevation towards the main entrance. 4, close-up of the main entrance. 5, inside the internal courtyard looking towards the glazed link between the two study-bedroom blocks. 6, the



junior common-room on the ground floor. 7. the split-level dining/sitting room of the warden's flat in the west wing. 8, built-in dressing table and wardrobe unit in a typical study-bedroom.











photographs by Henk Snoek



It is owing to the connection between Britain and Portugal created and maintained by the port-wine trade that Oporto possesses a major building by John Carr of York—the Hospital of Santo Antonio, designed about 1770 and shown opposite—as well as other later buildings of an English Palladian character. These buildings—and Consul Whitehead who had much to do with them—are the subject of the article below. The view opposite, 1, is that of the north façade of the hospital.

René Taylor

# THE ARCHITECTURE OF PORT-WINE

'Port,' remarked George Saintsbury in his Notes on a Cellar Book, 'gladdens as no other wine can do; and there is something about it which must have been created in pre-established harmony with the best English character.' The heyday of Britain's prestige and influence in the world coincided precisely with the period when it was acclaimed as the Englishman's drink par excellence, whether he were a fox-hunting squire, university don, a member of one of London's clubs or merely a charlady solacing herself, after her day's labours, with 'a port wine or two down at the old Bull and Bush.'

Though the wines of northern Portugal are known to have been imported into England as early as the sixteenth century, it was the Methuen Treaty of 1703, with its preferential tariffs, that really opened the English market to the vintages of the Upper Douro. By 1725 imports were running at the rate of 20,000 pipes yearly. At first port was probably not much more than a light table wine. It was not till later, particularly after the creation in 1757 of the Companhia de Agricultura das Vinhas do Alto Douro by the Marques de Pombal, king Joseph I's energetic minister, who delimited the vine-growing area and insisted that the wines therefrom should be reinforced with alcohol (much of it from his own estates), that port came to assume its present character.

It was thus that the export of wine became one of the main sources of Oporto's prosperity, and to-day it remains a city 389

with a marked eighteenth-century air, the number and diversity of its buildings belonging to this period being an impressive indication of the funds that were available. It is characterized by steep, rather narrow, sombre streets; for granite is the usual building material. Many of its houses with their carefully ordered fenestration and pediments on the skyline are reminiscent of nothing so much as those of Georgian London. Entire rows of houses, though plainly built in the course of the nineteenth century, conform to this type. This English influence is most marked in domestic buildings, though it is also to be found in a number of public ones, such as the University and the Bolsa or Stock Exchange.

This development was certainly something new in Portugal, for though she had always maintained close political and commercial ties with England, dating from the alliance of 1373, her artistic connections had always been with Italy, France and Spain. The change began to come about in the 1760's and was almost exclusively confined to Oporto itself, there being little evidence of the spread of this influence elsewhere. Clearly, therefore, it was a phenomenon resulting from the close relations promoted by the wine trade. But this was also the period when the intellectual, artistic and industrial ascendancy of England was beginning to make itself felt throughout Europe. Thus, the Romantic Movement, both in literature and the arts, was an English creation. The Palladian

style of building, from which ultimately the whole neo-classical spirit derived, originated in England in the early years of the eighteenth century. The English landscape garden was ousting the formal garden of the Baroque. English ideas on townplanning, public hygiene, road-building, engineering and kindred activities were being increasingly accepted abroad, and this trend was to be consolidated by the Industrial Revolution.

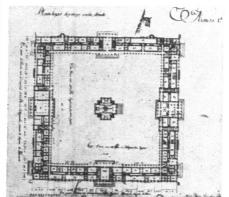
After about 1760 the Baroque, which had reigned unchallenged in Oporto for well nigh a century, began to lose ground, especially in the field of domestic architecture, though the Church, as was to be expected, continued to favour the older style. This change coincided with the governorship of João de Almada. He was a relative of Pombal and had been sent by him to Oporto in 1757 with the express purpose of bringing the city to heel after the popular insurrection against the minister's Companhia do Alto Douro. João de Almada had previously lived in Lisbon and no doubt had seen something of the plans for rebuilding the shattered capital after the earthquake of two years before. The style favoured there was a sober, academic classicism, mainly derived from the practice of Ludovice, the designer of Mafra. The new governor, as chairman of Oporto's public works committee, was destined to effect a considerable revolution in the city's lay-out and style of building. and it is to him and to his son, Francisco de Almada, that it very largely owes its

present character. Yet, behind them hovered another personality, that of John Whitehead, the English Consul, who was apparently a crony of the governor's. Almada, even before his arrival, must have been in favour of a simpler style of building after the fireworks of the Baroque, but it was undoubtedly the Consul who persuaded him that the English Palladian idiom afforded just the alternative he was looking for. Not only would it be less expensive, but it would be a classicism of unalloyed purity, which the Pombaline style of Lisbon was certainly not. Moreover it would be a style eminently expressive of the new secularism and 'enlightenment,' in opposition to the 'obscurantism' of the Church-let us not forget that Whitehead remained a 'true blue' Protestant to the end.

The immediate need was for a monument that should proclaim all the principles they sought to impose and at the same time serve as a model for local architects to follow. The opportunity presented itself in 1766 when the Misericordia decided to erect a new hospital. The Hospital of Santo Antonio at Oporto, designed by John Carr of York, has already been the subject of an article in these pages.\* Though never completed as planned, it remains one of the city's finest monuments, 1. That the commission for the design should have gone to an Englishman instead of to one of Nasoni's pupils was almost certainly due to Whitehead. Both the latter and the English chaplain, the Rev. Henry Wood, took part in the negotiations between the architect and the board of the Misericordia. There seems, however, to be little justification for believing that the latter was palmed off with a design that had been made for London and had been rejected as too large, for Carr, in a letter from York dated November 5, 1769, expressly states that he had made a tour of England to see the country's principal hospitals before \* 'Carr in Portugal,' by R. B. and Mary Wragg, AR, Feb., 1959.

settling down at the drawing-board to work on the Misericordia's commission.

Only four of Carr's original drawings survive, but it is possible to form a very complete idea of the whole, both in plan and elevation, from copies that remain. The majority of these are plans drawn in 1777 by Manoel dos Santos Barbosa, but there are also three drawings showing the



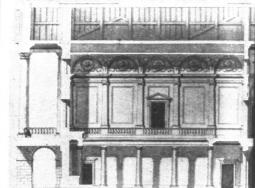
3, plan of the hospital of Santo Antonio; copied from John Carr's original by Mannel dos Santos Barbosa

elevations of all the fronts, both interior and exterior, except the one which was actually built. The design for the latter went astray some few years ago, when it was used for the completion of the pediment and other details. These, though dated 1795 and 1796, are not signed. They can, however, be attributed to Joaquim da Costa Lima, who we shall have occasion to refer to further; for in the minutes of the Misericordia of January 28, 1793, there is a record specifying that the latter was to make copies of all Carr's originals, which had been allowed to become mildewed, 'owing to the skill he had acquired in the house of the English Consul who had made use of his services.' The most interesting feature of this entry is the emphasis it lays on his connection with Whitehead, showing that his home was something of a training ground for the new generation of Portuguese architects. It is obvious, too, that by

the last decade of the century the board of the Misericordia had come to regard the Consul as the ultimate arbiter in matters of architecture.

These elevations, two of which are shown in 2, are splendidly executed, in contrast to the rough working drawings of Manoel dos Santos. They and the plan, 3, enable us to see how vast in scope was the original design, so that it is not surprising that the Misericordia never had the funds to complete it. They are of interest, too, in that they show in section the chapel and committee room that Carr had planned at first-floor level. The former, in particular, is completely alien to the Portuguese tradition of religious building, being a square box-like structure with a gallery running round three of its sides after the Anglican fashion, 4. These drawings also prove that the Kentian turrets with oval windows and pyramidal roofs, flanking the main portico, were not arbitrary modern additions as has sometimes been stated, but an integral part of the original design. In addition, they permit us to see what departures were made from Carr's plans in the course of their execution.

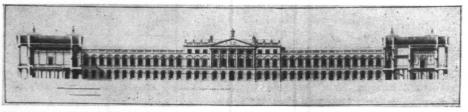
Though the main outer front, facing east, faithfully reflects the architect's intentions, the inner one was very severely truncated. The portico was suppressed



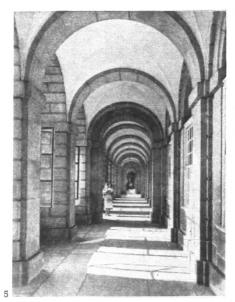
4. section through the hospital chapel.

entirely, probably in the interests of economy, leaving only an interminable succession of openings whose salient note is their monotony. The interior was likewise extensively modified, though it preserves the long covered gallery, 5, that Carr had planned to run all the way round. The main purpose of this gallery was, of course, to afford rapid access to all sections of the hospital, but it was also intended, so the architect tells us in the preamble he included with his designs, to serve as a kind of brise soleil that would protect the interior from the direct rays of the sun. Only one or two of the wards retain their original character, 6; recent advances in medicine and the need to provide up-todate operating theatres, consulting rooms and a thousand and one specialized depen-





2, the outer and inner fronts of the hospital of Santo Antonio at Oporto. The drawings are copies of John Carr's original designs.





Hospital of Santo Antonio, Oporto; by Carr of York: 5, the covered gallery; 6, interior of one of the wards.

dencies, not to mention the whole bureaucratic apparatus of a modern hospital, have inevitably forced changes upon its interior

Yet another item of interest, to which Carr draws attention in his preamble, is the drainage system, which was to be effected by means of a great arched sewer running down the length of the entire building. It was designed so that it could be constantly flushed with water. The problem of ventilating the wards and dependencies was to be solved by shafts going up to the roof, giving a constant circulation of fresh air throughout the interior. Each storey was to be provided with its own individual water supply, pumps being used to raise it to the upper parts of the building. This would have been particularly necessary for the top floor; for this was the section reserved for the foundlings, of which there was always a large number, and the nurses that looked after them.

Carr's Hospital was the first and most important building in the English Palladian idiom to be constructed in Oporto. But it was by no means the only one. Its influence was consolidated, a few years later, by the erection of a second monument in the same style, likewise designed by an Englishman; this is the building

known to-day as the Feitoria Inglesa or English Factory.

#### Consul Whitehead and the English Factory

The enormous growth of commerce in the later Middle Ages led to the establishment in most countries of Europe of communities of foreign merchants. These trading posts or factories, as they were called, were often the result of political ties and alliances, and it was not infrequent for them to be granted special privileges, such as that of being governed by their own laws. Examples abound. There was the Steelyard in London, where the merchants of the Hanseatic League had an important centre. The Venetians established similar posts in the eastern Mediterranean and further afield. In the fifteenth century the Portuguese had a factory first at Bruges and later at Antwerp, through which flowed the spices and luxuries that Portugal's caravels brought from the East. Trading relations between England and Portugal were favoured, not unnaturally, by their traditional alliance. An English factory is known to have existed in Lisbon from comparatively early times, though later the capital lost ground to the north as the principal centre of trade. This was chiefly due to the export of wines first from Viana do Castelo and later from the Douro valley, and to the catastrophe of the Lisbon earthquake, a blow from which-Pombal saw to that—it never recovered.

The existence of a British Consulate in Viana is recorded as far back as 1578, but the British Factory, forerunner of the one that still exists in Oporto to-day, did not come into being until 1654, as a result of the treaty between Portugal and Oliver Cromwell. Originally the Factory House seems to have shared premises with the Consulate. In 1711, however, with the growth of the port-wine trade, three houses were purchased and knocked into one with the object of providing a kind of headquarters and social centre for the British community. This was maintained by what was known as the Contribution Fund, which was a tax on wine and other commodities exported to England; it was levied with the sanction of Parliament on all British firms trading with the United Kingdom. In addition, it served to defray the stipend of an English chaplain, a doctor and a hospital, as well as to care for shipwrecked sailors and distressed British subjects. Though legally applicable only to English concerns, the tax was invariably exacted from Portuguese traders as well by the simple expedient of withholding clearance papers from those refusing to pay. There are records of complaints by Portuguese wine-shippers trading with Britain against this arbitrary procedure, especially as they, unlike the English firms, were excluded from the Fund's benefits and were not permitted to use the Factory

For seventy-five years the Factory continued to occupy the premises purchased in 1711. But as the century wore on and the British community prospered, the need for better quarters became pressing. It was, therefore, decided to demolish the existing structure and erect in its place a building more in keeping with the wealth and dignity of its members. This was begun in 1786 in accordance with plans prepared by Consul Whitehead himself, who also superintended its construction.

Mention has already been made of John Whitehead in connection with the Hospital of Santo Antonio. He appears to have been one of the leading personalities in the city of his adoption. Born in Lancashire at Ashton-under-Lyne in 1726, he was appointed Consul at Oporto in 1755 and continued to occupy the post until his death in 1802. He lies buried in the cemetery attached to the English church and his portrait, 7, hangs on the wall of the staircase in the Factory he planned and

The best description of Whitehead is to be found in Costigan's letters written from Portugal in 1778 and 1779.\* Costigan was the Consul's guest during his stay in Oporto, so that he had every opportunity of getting to know him at close quarters. He describes Whitehead as kindly, informative and witty, living alone in a large house with none but an elderly housekeeper to look after him. Except for the



7, portrait of John Whitehead, British consul at Oporto from 1755 till 1802. It hangs in the English factory he planned and

hours absorbed by the duties of his office, most of his time was spent in study. He was a person who tried to live up to the

\* Capt. Arthur William Costigan Sketches of Society and anners in Portugal, London, 1787.

Renaissance ideal of the 'universal man.' He was interested in all branches of knowledge and all fields of human activity: economics, physics, astronomy, geography, agriculture, architecture, mathematics, and so on. He possessed a vast and heterogeneous library that bore witness to the wide range of his interests. It contained numerous works on science and mathematics, which were the predominant interest of his life. He is known to have corresponded with the Academy of Sciences in Lisbon on a project to introduce uniformity into the system of weights and measures used in Portugal, a scheme which greatly interested the Marques de Pombal.

Whitehead also possessed two of the greatest globes that Costigan had ever seen, no less than four feet in diameter. They had been made under his direction by local craftsmen, of whom there were always four or five working in his house. On these globes he would introduce changes and modifications in accordance with the latest calculations available. He also used the camera obscura, that favourite eighteenth-century toy, and had invented a device to enable him to copy accurately the objects it reflected on the screen. Costigan further mentions that Whitehead possessed a number of solar microscopes. and an apparatus for conducting electrical experiments. He had installed a lightning conductor on the roof of his house, consisting of a long iron bar embedded in a flower-pot with a length of chain dangling from the top end. This was sufficient to convince the ignorant that he was a sorcerer and dabbled in the occult arts. On one occasion, in a storm, a flash of lightning actually shattered the flower pot. This caused great consternation in the city; for it was alleged that the Consul could attract lightning at will. The matter was immediately reported to the Inquisition. Whitehead, however, had powerful friends and his quasi-diplomatic status afforded him a certain amount of immunity. The Holy Office, which by that time had had most of its teeth drawn, discreetly let the matter drop.



8, the wooden model of the design for the English Factory at Oporto, still preserved in the library.

In our context we are chiefly interested in Whitehead as the embodiment of the eighteenth-century Anglo-Palladian architectural observance. Yet he was more than just a knowledgeable amateur. By reason of his mathematical training he was able to put his theoretical learning into practice. Unlike Lord Burlington he actually directed operations on the site. This we know from more than one contemporary source, Unfortunately, however, all the Factory's records prior to the end of the Peninsular War are missing, so that nothing very positive is known about the builders and masons who worked on it, except for a few stray references. To Manoel Moreira da Silva is attributed all the carpentry and joinery work of the interior.

Whitehead's building is generally reckoned to have been finished in 1790. It certainly appears as completed in Aguilar's topographical view of Oporto dated 1791. The Factory occupies the north-western angle formed by the intersection of the Rua Nova de São João and the Rua do Infante D. Henrique, formerly known as the Rua dos Inglezes. The main façade, 9, which has a frontage of some 70 ft., gives on to the last named. The side elevation, seen on the right in 10, is about 20 ft. longer, but is divided into two sections, the further one housing the servants' quarters, kitchens and other dependencies. It gives the impression of being detached from the main body of the building. This is largely to be accounted for by the need to compensate for the steep fall in the level of the road, but it has the advantage of preserving the block-like integrity of the main structure. The whole building is on three floors, with the addition of a mezzanine between the ground floor and the piano nobile. The former takes the form of the inevitable Palladian rusticated loggia, divided in this instance into seven openings, their disposition being carried into the upper

The whole front is disarmingly simple, yet it avoids monotony by three expedients. First the architect advanced the central section very slightly; secondly he spaced the windows of this section a little more widely apart, surmounting those of the piano nobile with triangular pediments instead of segmental ones, and lastly he interrupted the balustrade on the skyline by the introduction in the centre of a rudimentary attic adorned with three swags of fruit. It was apparently also his intention to crown the composition with an impressive statue, of Britannia perhaps, but this never materialized. James Murphy,\* however, who visited Oporto while the Factory was still being built, describes how the Consul filled three folio

\* James Murphy Travels in Portugal in the years 1789 and 1790. London, 1795.

sheets of paper with calculations to determine the exact angle of inclination the statue should have so as to be visible to anyone standing at the corner of the street.

The side elevation is more perfunctory. The loggia has been suppressed, and the large windows have either straight canopies or no capping at all. The main section, however, is surmounted by a large pediment in uniformity with the other houses in the vicinity. The only two somewhat un-Palladian features of the composition are the mezzanine, which is comparatively rare outside the work of Sir William Chambers, and the wrought-iron balconies, the fashion for which had only just reached London from Italy. The wooden model preserved in the Factory, 8, shows that these were originally designed to be of stone.

A long entrance hall, 11, divided into three aisles, leads to the central staircase. It consists of a series of Tuscan pilasters and free-standing columns without entablature supporting shallow groin vaults. This hall was apparently known as the *Piazza* and was designed to serve as a parking place for the sedan chairs of the members, the benches round the walls being used by the bearers while they waited.

The newel staircase beyond, 12, is organized round a spacious open well; each step has been fashioned from a single piece of granite, embedded in the wall, as are the landings. Other than this, the staircase has no support of any kind. The wrought-iron balustrade and brass hand-rail were executed by local Portuguese craftsmen and match the style of the balconies on the exterior. The whole is lighted by a huge skylight, just below which hangs the portrait of Consul Whitehead.

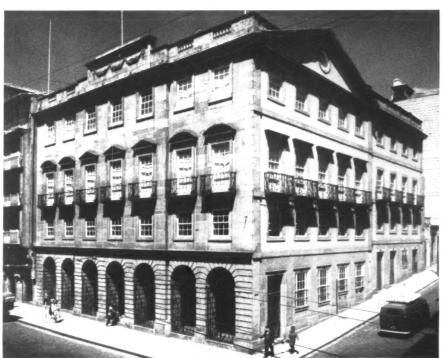
The staircase leads straight from the ground floor to the rooms on the piano nobile, the intermediate mezzanine floor being reached indirectly. The latter contains the library, dating from 1817 and possessing some 15,000 books. There are also reading and writing rooms, in one of which is kept the wooden model of the Factory already referred to. Among other records preserved here is a visitors' book signed by many of Wellington's officers during the Peninsular War.

On the piano nobile are the four principal rooms of the house, namely the Dining and Dessert Rooms, 13 and 14, the Ballroom, 15, and the Drawing Room. The Dining Room normally holds about thirty diners. It is a long, low room, devoid of adornment, except for two built-in vitrines for china at one end and a very simple Adamstyle overmantel. The other end opens out into the Dessert Room, which is of identical size and proportions. It is a tradition of the Factory that, whenever an important

[continued on page 395



The English Factory at Oporto, designed by John Whitehead and completed in 1790: 9 (above), the main farade (photographed before the recent erection of trolley-bus cables); 10 (below), showing also the side elevation with annexe containing servants' quarters, etc.



Below, interiors of the English Factory at Oporto: 11, the aisled entrance hall; 12, the open staircase with wrought iron balustrade; 13, the dining-room; 14, the dessert-room, designed as a withdrawing room for dessert and port after formal dinners; 15, the ballroom looking towards the gallery.











15



16, the kitchen at the English Factory at Oporto (see overleaf)-situated on the top floor of the building and top lit.

17 (right), English-style houses in the Rua de São João, Oporto, built at approximately the same time as Whitehead's Factory. Whitehead's scheme for improving the whole street was not carried out.

18 (below), the Praça da Ribeira, showing the arcaded buildings that have survived (though with added top storeys) from Whitehead's remodelling of the square, then the most important in Oporto, facing the River Douro.





continued from page 392]

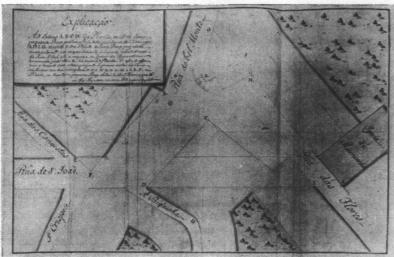
dinner is held, the diners proceed to this room so as to have their dessert and port at a fresh table and in a fresh atmosphere. At the present time a members' lunch is held once a week. Though only eleven portwine firms own the Factory House, attendance at these lunches is so numerous that a part of the Dessert Room has to be used to accommodate all the would-be diners, this overspill being referred to as the 'House of Lords.'

The principal room, however, is undoubtedly the Ballroom. Ample and wellproportioned, it is articulated by means of an Ionic order of pilasters crowned by a full entablature, with a deeply coved ceiling above the cornice. It is lighted by three large windows, corresponding to the three openings with triangular pediments in the central part of the main façade, and by the three smaller windows of the top storey. At the opposite end is a kind of minstrels' gallery with three arched openings corresponding to the three upper windows just mentioned. Decoration is confined to the panels between the pilasters, which is little more than a distant reminiscence of the style of Adam, and to the sinuous garland that meanders round the ceiling. Formerly the flat part of the panels was coloured, against which the white plasterwork stood out. Recently, however, the whole has been painted an anodyne cream which robs the room of much of its personality. Notable are the great crystal chandeliers, identical to those in the Dessert Room. Similar in size and shape to the latter, but on the other side of the Ballroom, is the so-called Drawing Room. This is chiefly notable for a set of Chippendale chairs, said to be originals, but which may well be skilfully executed Portuguese copies.

Lastly, mention should be made of the enormous kitchen, 16, situated at the very top of the building. This is nowadays only used on great ceremonial occasions. Like the staircase, it receives its light from above. The most interesting items here are two immense cast-iron ranges of English manufacture, both hailing from London Bridge, which must have been shipped to Oporto in the very early days of the port-wine trade and may well have belonged to the first Factory building. One was made by Deane & Co., and bears the date 1700; the other bears the name of J. Evans of King William Street.

### Whitehead and Town-planning

So far we have dealt with the English Factory as a building on its own. There is no doubt, however, that its construction formed but a part of an ambitious town-planning scheme. This aimed at a complete transformation not only of the Rua de São João, in which the Factory is situated, but also the approaches to it, in particular of



19, Whitehead's plan for a new layout at the upper end of the Rua de Sao Joao, Oporto, roughly corresponding to the present Largo de S. Domingos.

the Praça da Ribeira, the principal square of Oporto at the time. Moreover, there is ample evidence to show that, as with the Hospital and the Factory, it was John Whitehead himself who was the mainspring of the whole project. In this, too, he was helped by the enlightened co-operation of João de Almada in his capacity as president of the city's Public Works Committee.

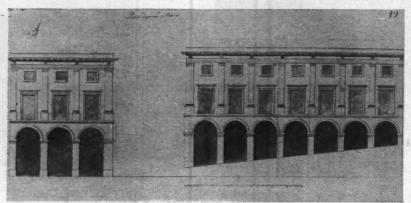
The idea was to give Oporto's main thoroughfare regularity and dignity in accordance with contemporary theories of town-planning. It was obviously not practicable to remodel the entire old city, with its maze of steep narrow streets dating from medieval times. Attention was, therefore, concentrated on the business section. At the same time the scheme aimed at providing an artery leading from the river front to the outlying districts to the north and north-east, many of which were then of very recent creation.

Unfortunately Whitehead's scheme for 'improving' the Rua de São João and the Praça da Ribeira was only carried out to a small extent. Our knowledge of its scope and implications is mainly derived from plans that have survived and from literary sources. A number of houses along the Rua de São João, particularly those close to the Factory, have pedimented fronts and discreet fenestration in the English style, 17, showing that they were built at approximately the same time as Whitehead's building. The total effect, however, has been marred by two deplorable nineteenth-century developments. The first is the indiscriminate addition of extra storeys to many of the houses, the second the widespread practice of sheathing the entire exterior in coloured tiles or azuleijos. As each owner has tended to choose the colour he fancied, the whole street has a piebald appearance.

Our knowledge of Whitehead's scheme is entirely due to the researches of Dr. Pinto Ferreira, director of Oporto's Gabinete da Historia da Cidade. He has published the relevant plans, together with a wealth of documentary material that can be no more than summarized here. It is clear that Whitehead regarded the Rua de São João as forming an axial unity not only with the Praça da Ribeira on the waterfront but with the north end of the street as well. This is demonstrated in a plan, preserved in the Gabinete da Historia which actually bears the caption Foy projectado em 1774 polo consul d'Inglaterra.

Whitehead's intention was to convert the small rectangular square at the upper end of the Rua de São João, roughly corresponding to what is to-day the Largo de S. Domingos, into a spacious triangular praça by eliminating such buildings as stood in the way. This small square is shown on the plan, 19, by the letters A, B, C, D; the proposed extension by the letters A.D.I.G. This would have allowed the splendid Baroque façade of the Misericordia (which, incidentally, the good Consul must have detested) to be seen from the Praça da Ribeira. The effect would have been similar to that of Nasoni's other masterpiece of religious architecture, the church of the Clerigos, standing impressively at the upper end of the street of the same name. But nothing came of it, so that to-day the front of the Misericordia continues to stand as cramped and invisible from the narrow Rua das Flores as when it was first built.

The remodelling of the Praça da Ribeira was a more ambitious undertaking. This square, fronting the river Douro, was the most important in the city. Nothing very positive is known about its original aspect, except that it was bounded on the southern or river side by an irregular length of wall, in all probability part of the medieval ramparts. The Consul's main preoccupation was to give the whole square an appearance of symmetry and regularity. To this end he fronted the wall with an



20, Whitehead's design for the Praca da Ribeira-see photograph on page 394.

arcade of eight arches, all of which were closed except one to the extreme west. This contained a stairway giving access to the quays. At the same time the top of the arcade provided a kind of riverside esplanade where the citizens of Oporto might take their leisure.

All this was demolished in the course of the nineteenth century. The north and west sides, however, have miraculously survived, 18. Unfortunately the latter has been disfigured by the addition of extra storeys, and the conversion of the open arcade into storerooms and shops resulting in the openings being filled in with doors, windows and patches of brickwork, completely vitiating the effect of depth and chiaroscuro that was originally intended. Two drawings in the Gabinete da Historia. a ground-plan and an elevation, 20, the latter initialled by João de Almada in token of his approval as head of the Public Works Committee, confirm that at this point the buildings were carried out as designed.

Nothing could be more disarmingly simple than this Palladian front, which depends for its effect wholly on its proportions and the careful relation of solids to voids. It is reminiscent of Inigo Jones's designs for Covent Garden and old Somerset House, though its immediate source of inspiration was probably the Palladian town houses of London of the first half of the eighteenth century. Certainly nothing could be more English than this west side of the Praça da Ribeira.

The construction of the front in question can be put at around 1780. It was certainly finished by 1784, as in that year the Committee issued instructions for the houses on the opposite side to be requisitioned and replaced by an exact replica of the one existing. Unfortunately, however, this was never carried into effect. At that time, too, the fountain at the north end, between the Rua de São João and that of the Mercadores, was nearing completion, though this feature with its elongated pilasters and florid decoration is unlikely to owe much to Whitehead. On the other hand, it fulfils

an essential function in providing a point d'appui for the whole square.

Whitehead's activity in the Praça da Ribeira did not end with the remodelling of its south and west sides. He also intervened in the construction of the chapel of Nossa Senhora do O. This building occupied the extreme south-east corner of the square. It did not, however, stand at ground level but surmounted a monumental passageway that debouched into the Praça from the riverside, known as the Porta da Ribeira. The entrance to the chapel was reached by climbing the steps up to the esplanade on top of the city wall. When the wall and the passageway were demolished, the chapel inevitably disappeared with them.

The Consul's intervention in this work is attested by yet another drawing in the Gabinete da Historia. This is a design for a baluster, 21. It bears the inscription, in English: N° 2 RIBEIRA CHAPEL Banister of the proper size for the Venetian Window. The handwriting is that of Whitehead himself. Moreover the presence of João de Almada's initials at the top of the sheet shows that it had been officially approved. Clearly, then, Whitehead had planned a Venetian window for the chapel of the kind that Carr of York had used in the Hospital. Beyond this we know virtually nothing about this building. The Porta da Ribeira is known to have been de boa e bem trabalhada cantaria ('of good and well executed masonry'), while the superstructure was uniform in aspect with the Palladian style of the remainder of the square. The interior was ornate and richly gilded.

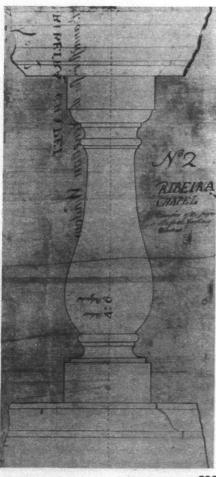
The implications of Whitehead's ideas, particularly as affecting the reform of the Praça da Ribeira, have not been lost on Oporto's town-planners. Various projects have been developed, aimed at giving symmetry and regularity to this square. All return to his basic concept. Should the City Fathers ever take the matter seriously in hand, they could still not do better than revive Whitehead's original scheme. This would entail no more than the construction

of an arcade of identical arches to the south, parallel to the river, the demolition of the storeys above the cornice on the west side, the suppression of the attic on the north side and the remodelling of the east side in the style of the existing west one, as originally intended. Such a reform, hallowed by tradition, would be relatively inexpensive to carry out, since one half of it already exists. It would be a tribute to a man much of whose life was dedicated to the service of Oporto—in piam memoriam Viri Optimi et Bene Merentis, as Whitehead's epitaph in the English Cemetery puts it.

### The Aftermath

The influence of English Palladianism, introduced into Oporto by John Whitehead, lasted until well into the nineteenth century. The main figure concerned in its perpetuation was undoubtedly Joaquim da Costa Lima Sampaio, who was commissioned by the Misericordia in 1793 to copy Carr's plans for the Hospital on the grounds that he had been trained by the Consul. Few details are as yet known about his life. He was the son of a mason and in all probability played an important part in the erection of the English Factory. He was active as one of the municipal archi-

21, design for a baluster for the chapel of Nossa Senhora do O.



tects of Oporto until around 1830, when he appears to have been succeeded by his son. The latter had the same name as the father and was also an architect, which has inevitably given rise to some confusion between them. To the first named we owe the Palacio dos Carracas, the English church of Saint James and probably Messrs. Sandeman's Wine Lodge at Vila Nova de Gaia on the south bank of the Douro, while the son designed the Bolsa or Stock Exchange.

Sandeman's Lodge, 22, dated 1797, is particularly interesting because this is the only old-established firm of English portwine shippers which has never moved from its original premises. The façade faces the river, and behind lie the bodegas where the wine is matured and stored. Though unpretentious, it is an engaging composition if only one can contrive to forget the horrible electric sign that defaces it. There is the inevitable loggia at street level, here consisting of five openings, surmounted by a plain upper storey with a small pediment in the centre. The interior, 23, consists of a succession of massive arches, parallel one to another, surmounted by a simple wooden roof, this being the usual arrangement for lodges of this kind.

In contrast to the dearth of information about Sandeman's Lodge, the story of the construction of the English church is known in considerable detail. In 1787 a tract of land was bought from the Prior of Cefodeita and conveyed to the English Consul, John Whitehead. The immediate object of this was to provide a muchneeded English cemetery; at the same time it would provide a site for the erection of a chapel should the occasion ever present itself. Nothing materialized during Whitehead's lifetime. Then came the upheaval of the Napoleonic invasion and Wellington's campaigns in the Peninsula, from which the French were finally chased in 1813. Very shortly afterwards a new commercial treaty was signed between Portugal and Great Britain in which, by way of acknowledging the services rendered to the Portuguese crown by the English red-coats, the former granted permission for the erection of a number of Protestant chapels within its territories.

The earliest reference to the present building occurs in the minutes of the Contribution Fund for January 2, 1815, when a committee was appointed to 'draw up a plan and Estimate of expenditure.'

Approval having been obtained from the Bishop of London and from the Ambassador in Lisbon, who at that time was no less a person than the future Tory Prime Minister, George Canning, the committee approached Joaquim da Costa Lima to provide an estimate. It was decided that 'the large room at the Factory House should be taken as a model in point of proportion and dimension . . . sufficient to accommodate about 200 persons.' The estimate came to 5,200 milreis. It is significant that the committee made no attempt to obtain estimates from other sources, presumably because Joaquim da Costa's experience in building in the English style made him the obvious choice. By July 10 of the following year the structure was well advanced, but the committee gave notice that the original estimate was likely to be substantially exceeded, mainly due to a miscalculation on the part of the architect, for which 'the committee hold Senr. Joaquim da Costa highly culpable, but they are not of the opinion that his charges have been unreasonable or that he has put the Society to any unreasonable expence.' Though completed by 1817, the chapel was not consecrated until August 20, 1843.

The Church of St. James as it stands to-day, 24, bears but small relation to the original chapel built a century and a half ago. The addition of transepts and an apse has modified it almost out of recognition. The exterior, with its salient porch surmounted with a pediment and pilaster



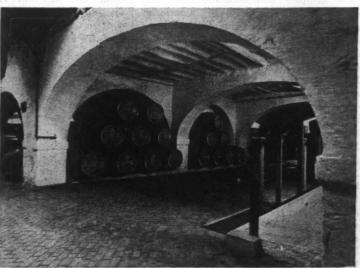


The English church of St. James by Joaquim da Costa Lima: 24, the exterior, much altered, but retaining some of the original character in the portions shown; 25, the interior, also altered—see 98 overlast

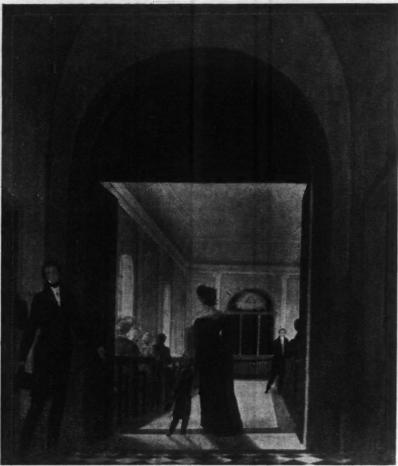
strips at the angles, is probably what best preserves its original character. The interior, 25, has on the other hand been badly defaced. There exists a painting in the vestry, 26, executed around 1830, which gives us a glimpse of what the interior was like originally. Though no work of art, it is useful as a record. It shows the church to have been a long aisleless room, divided into seven bays, lighted by three round-headed windows on each side. Of these seven divisions, marked by Ionic pilasters, only five now remain, the others having been sacrificed when the

Below, Sandeman's wine lodge (Vila Nova de Gaia): 22, the facade facing the River Douro; 23, part of the interior.





20



28, interior of the English church, Oporto, as it was in about 1840, from a painting in the vestry—see preceding page.

building was enlarged. Another feature that has disappeared is the Decalogue which occupied the central space behind the altar. But the most disconcerting alteration has been the lowering of the ceiling. The result has been to flatten out the coving, giving it the rather unpleasant rake it has to-day.

If Sandeman's Lodge and the English church betray the influence of Whitehead's more intimate and domestic style, the remaining buildings to be mentioned derive rather from the monumental manner of John Carr, as enshrined in the Hospital of Santo Antonio. They are the Palacio dos Carrancas, 27, the University, 28, and the Bolsa, 29. In all three instances the interiors are of slight interest, so that we can confine ourselves to an examination of their façades. The first-named is better known to-day as the Soares dos Reis Museum. It was begun in the last decade of the eighteenth century to the designs of Joaquim da Costa Lima Sampaio. It must have been completed fairly rapidly, as the Duke of Wellington made it his headquarters after the French had been driven out of the city. The University was designed in 1803 by José da Costa Silva, but his plans were modified four years later by the military engineer, Cruz

Amarante. In 1862 still further alterations were made, and the building was not finally completed until the beginning of the present century. The Bolsa was the last of these buildings to be begun. This was in 1839, so the date 1834 on the pediment cannot refer to its construction. The architect was Joaquim da Costa Lima Sampaio Junior. This structure, too, went through many vicissitudes, and was not completed until 1891. It was here that the Queen was entertained by the city on her visit to Oporto in 1958, as the Town Hall was still unfinished at the time.

The façade of the Palacio dos Carrancas was obviously inspired by the side elevation of the Hospital and displays Carr's typical urns on the skyline. One interesting feature is the way the stringcourse has been converted into a ledge on which rest the wrought-iron balconies of the principal storey. By contrast, the other two buildings show the influence of the main façade of the Hospital, except that the Englishman's hexastyle temple front has been replaced by a tetrastyle one. There is one feature that all three have in common, a mezzanine. It is as if the designers had been seeking a means of combining the general disposition of Whitehead's Factory front with that of the Hospital. The Consul, however, had been careful to make his mezzanine run uninterruptedly across his whole front. The Portuguese designers were unwilling to concede it the same independence; instead they suppressed it at the centre. To compensate for its absence at this point they adopted the expedient of raising the height of the entrance loggia. This in turn meant that the temple front became dwarfed into insignificance. It is only necessary to compare them with Carr's to realize how deficient they are in plastic vigour.

This is particularly noticeable in the Bolsa. Clearly the design is the work of a man determined to maintain to the very last his allegiance to the style in which he had been trained. At the same time it illustrates how the pure essence of Carr's Palladianism became diluted by extraneous influences-note, for instance, the way the openings framing the ground floor windows and the mezzanine have segmental lintels, a feature rarely, if ever, found in Palladian architecture. But it is the pedimented portico that is most disconcerting. By keeping his loggia low, John Carr had been able to give his temple front the height and prominence that make it so impressive. The incorporation of a mezzanine in these later façades destroys all that. Obviously the architect had to adopt a tetrastyle portico to correspond to the three openings below; he could not increase the number of his columns at will. Moreover, being forced by the mezzanine to make his temple front low, he had no remedy but to use small columns and to space them uncomfortably wide apart. Both these defects are considerably heightened by the depth to which the wall at the back has been pushed. In the façade of the University this is less noticeable because the portico is much shallower. Here, however, against the resulting penumbra, the columns look thin and undernourished, as if barely able to carry the weight of the pediment. It is such peculiarities as these that remind us sharply that we are in the nineteenth century with its cult of the Picturesque. At the same time this front is plainly the work of a man whose roots were in the century of the 'rule of taste.' It was the swan song of Palladianism in Oporto.

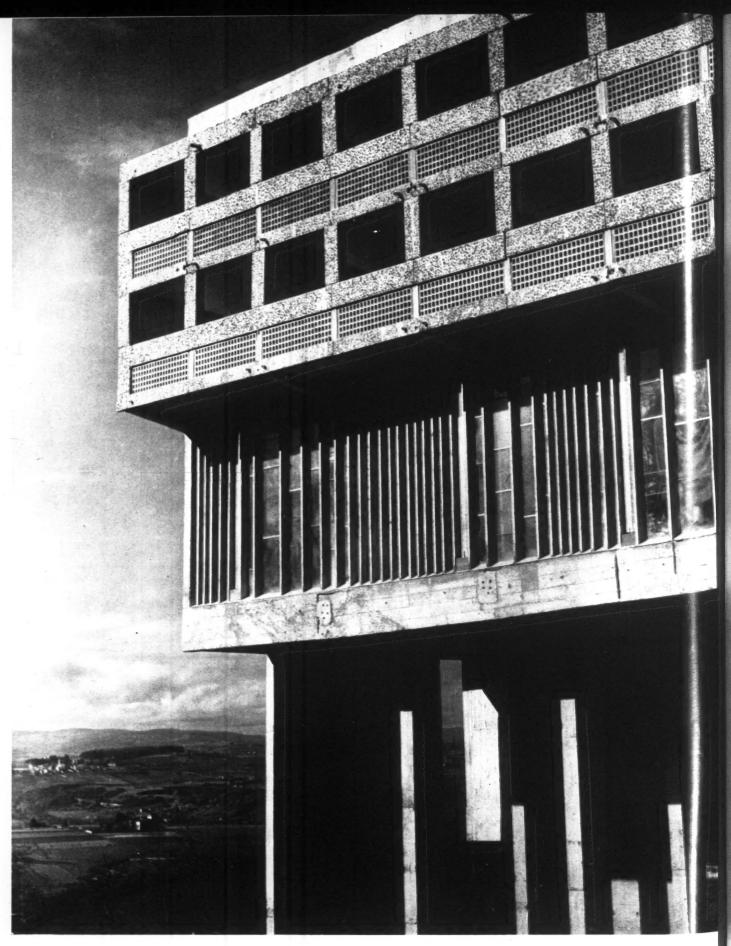
The author wishes to acknowledge the financial assistance received from the Calouste Gulbenkian Foundation (English section) to enable him to complete the necessary research for this article.







Three monumental buildings in Oporto which derive their style from John Carr's hospital of Santo Antonio (see pages 388–390): 27, the Palacio dos Carrancas; 28, the University; 29, the Bolsa (Stock Exchange).



1, south-west corner of the monastery of La Tourette, with the distant landscape seen over the edge of the hill on which it stands. The monastery, which lies about fifteen miles north-west of Lyons, is the subject of this month's critical article, beginning opposite.

criticism

Colin Rowe

Architect: Le Corbusier

Dominican Monastery of La Tourette, Eveux-sur-Arbresle, Lyons

In 1916, at La Chaux-de-Fonds, Le Corbusier erected a house with a centrally disposed blank panel. Forty years later, in the monastery of La Tourette and at a heroic scale, he has repeated something very like this device. At La Chaux-de-Fonds the blank panel is the central figure of a façade. At La Tourette a largely blank wall comprises the north side of the church. But in both cases, in the villa and in the monastery, as the building is first experienced, the focus of the visual field is provided by an element without high intrinsic interest which, while it absorbs the eye, is unable to retain its attention.

In 1920-21, running through the articles in L'Esprit Nouveau which were later to be collected as Vers Une Architecture, there appeared the first public evidence of Le Corbusier's intense preoccupation with the

Athenian Acropolis:

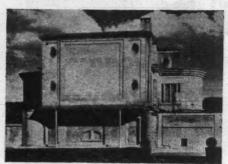
'The apparent disorder of the plan could only deceive the profane. The equilibrium is in no way a paltry one. It is determined by the famous land-scape which stretches from the Piraeus to Mount Pentelicus. The plan was conceived to be seen from a distance: the axes follow the valley and the false right angles are constructed with the skill of a first rate stage manager. . . . The spectacle is massive, elastic, nervous,

crushingly acute, dominating. . . . The Greeks on the Aeropolis set up temples which are animated by a single thought, drawing around them the desolate land-scape and gathering up into the composition.

It is not necessary to continue. But at La Tourette, while Piraeus and Pentelicus are alike lacking; while we are presented rather with a species of Escorial than a type of Parthenon; and while the old chateau, partly a farmhouse and partly a piece of Second Empire wish-fulfilment, is certainly not the most likely candidate for the role of Propylea-though differences are so obvious that they need scarcely be stressed—there are still certain patterns of organization-e.g. a compounding of frontal and three-quarter views, an impacting of axial directions, a tension between longitudinal and transverse movements, above all the intersection of an architectonic by a topographical experiencewhich may to the initiated suggest that the spatial mechanics of the monastery's precinct are just possibly some very private commentary upon Acropolitan material.

But the casual visitor to La Tourette will have little conscious time for this precinct. He has climbed a hill, penetrated an archway and arrived in a gravelled courtyard to find himself in what certainly appears to be no more than the picturesque hiatus between two entirely discrete buildings; to be a merely incidental space. To his left there is a mansarded pavilion. It carries a clock with blue Sèvres figures. To his right is a kitchen garden of uncertain extent. But these, of which he is dimly aware, are the very subsidiary components of the scene. For right ahead, obsessively prominent and unsupported by any shred of conventional artifice, there is the machine à émouvoir which he has come to inspect.

Secretly the casual visitor is a little dismayed. He is no longer to be shocked by the absence of a preface to a work of architecture. He feels that by now he can take any lack of introduction quite in his stride. He is hardened to a very good deal. But he still scarcely expects to be so entirely cold-shouldered as here seems to be the case. A vertical surface gashed by horizontal slots and relieved by a bastion supporting gesticulating entrails; an enigmatic plane which bears, like the injuries of time, the multiple scars which its maker has chosen to inflict upon it; by any standards an inference of his own complete irrelevance—the visitor had anticipated something either a little less or a little more than this. And thus, while the three entrails, the so-called canons-à-lumière, might seem to quiver like the relies of a highly excruciating martyrdom, while the general blankness of the spectacle might seem to be representative of religious anonymity and while a variety of phantasies infiltrate his consciousness, the



2, the villa built by Le Corbusier at La Chaux-de-Fonds in 1916. Colin Rowe argues a similarity between this and the approach side of La Tourette (below), in that both have as visual focus an element without high intrinsic interest which absorbs the eye but does not retain attention.

visitor, since he feels himself to be presented with a random disclosure of the building, is at this stage disinclined to attribute any very great importance to his experience.

The north side of the church this wall is instinctively known to be. It is doubtful if any other element could be so opaque. So much is evident. But, therefore, while the visitor interprets it frontally, he also attributes to this inscrutable visual barrier the typical behaviour patterns of an end elevation. This wall may indeed be a great dam holding back a reservoir of spiritual energy. Such may be its symbolical reality. But the visitor also knows it to be the part of a building; and he believes himself to be approaching, not this building's front, but its flank. The information which he is being offered, he therefore feels, must be less crucial than simply interesting. The architect is displaying a profile rather than a full face. And, accordingly, since he assumes that the expressive countenance of the building must be around the corner, rather as though the church were the subject of a portrait en profil perdu, the visitor now sets out to cross an imaginary picture plane in order to grasp the object in its true frontality.

A certain animation of contour—the oblique cut of the parapet and its intersection with the diagonal of the belfry—will focus his eye and lead him on. But if, for these reasons, the building first insists on a rapid approach, as he climbs the hill or moves along the alley within the trees, the visitor is likely to discover that, somehow, this gesture of invitation has vanished and that the closer he approaches it the more unsympathetic the building seems to become towards his possible arrival.

This is one aspect of a disconcerting situation; but another should be noticed:

that at a certain stage in the approach route the building suddenly comes to seem utterly drained of importance. For, as one leaves behind the courtyard of the old chateau, which is the socket of the enclosure in which one had believed oneself to be, one is obliged to exchange a reliable womb for an unpeopled arena. The whole deserted sweep of the upper valley of the Turbide has progressively come into view; the field of experience is transformed, and the nature of the stimuli to which one is subjected becomes systematically more concentrated and ruthless.

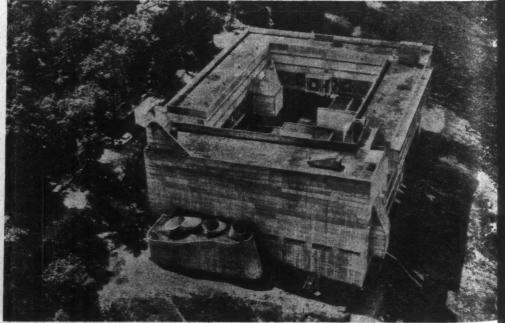
Thus, the eye which was previously directed towards the left of the church façade, towards the point of entrance, is now violently dragged away towards the right. The movement of the site has changed. The visual magnet is no longer a wall. Now it has become an horizon. And the wall which previously had acted as the backdrop to one field of vision, as a perspective transversal, now operates as a side screen to another, as a major orthogonal, which directs attention into the emptiness of the far distance but which, by foiling the foreground incident—the three entrails-also serves to instigate an insupportable tension between the local and the remote. In other words, as the church is approached, the site which had initially seemed so innocent in its behaviour becomes a space rifted and ploughed up into almost unbridgeable chasms.

This is conceivably to provide too lurid an analysis; but, though it may exaggerate the intensity, it does not too seriously distort the quality of an experience which

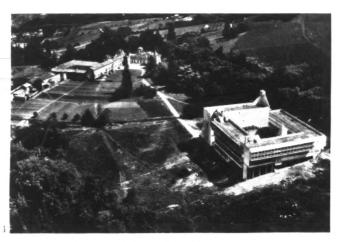
is unexpected as it is painful. It would be possible, and maybe even justified, to interpret this preliminary promenade architecturale as the deliberate implication of a presumable tragic insufficiency in the visitor's status. The wall is exclusive. The visitor may enter, but not on his own terms. The wall is the summation of an institutional programme. But the visitor is so placed that he is without the means of making coherent his own experience. He is made the subject of diametric excitations; his consciousness is divided; and, being both deprived of and also offered an architectural support, in order to resolve his predicament he is anxious, indeed obliged-and without choice-to enter the building.

It is possible, but it is not probable, that all this is uncontrived. However, if one happens to be sceptical of the degree of contrivance and if one is temperamentally predisposed to consider the game of hunt-the-symbol as an over-indulgence in literature, then it will be desirable to continue an inspection of the building's exterior. It is not an easy decision to make. For the vertical surface of the church wall slices both the higher and lower approach roads like a knife and, when this psychological obstacle is penetrated, though something of the interior of the convent is at last presented, a further discovery is made. The visitor now finds that the anticipated frontal views never do, in fact, materialize. He becomes aware that the only surface of the building which actively encourages a frontal inspection is indeed exactly that north wall of the church which it had been

[continued on page 407



3, air-view showing the blank north wall of the monastery (that of the church), which is all that is seen as the visitor first approaches it. At the foot of the wall is a side chapel lit by three canons-k-lumière. It is of some interest that Le Corbusier, who does not normally walking in photographs of his buildings, has included this is his reent is unbidocarabical antibology. In V. Wood.



4, air-view of the monastery of La Tourette from the south-west, showing in the distance the chateau from which the monastery is approached, 5, the southern side, again looking towards the chateau (which is partly hidden by the building), 6, the western side, seen from a short way down the slope of the hill. At the top of the building are the cells; below are lecture-rooms and the refectory; on the left is the end of the church.







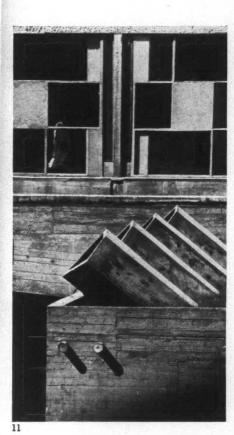
7, from the west, looking through the gap between the end of the church (on left) and the living-quarters, refectory, etc. 8, side view of the church, facing the approach from the north, with projecting side-chapel on the roof of which are three canons-à-lumière, and (top left) the belfry. 9, detail of the western side (steps leading to the refectory) with the end of the church beyond.







10, looking into the courtyard of the monastery from the eastern side, with the church on the right and, on the far side, the corridor windows of the two tiers of cells. 11, close-up from the same direction. In the foreground are canons-à-lumière on the roof of the southern side-chapel of the church, on to which they throw indirect light. Beyond are the windows of the corridor serving the lecture-rooms (see plans on page 409). 12, close-up of part of the two-tier range of cells along the western side (see 1, page 400), with their open balconies and showing the contrasting concrete textures.

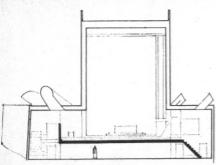


Dominican monastery, Eveux-sur-Arbresie







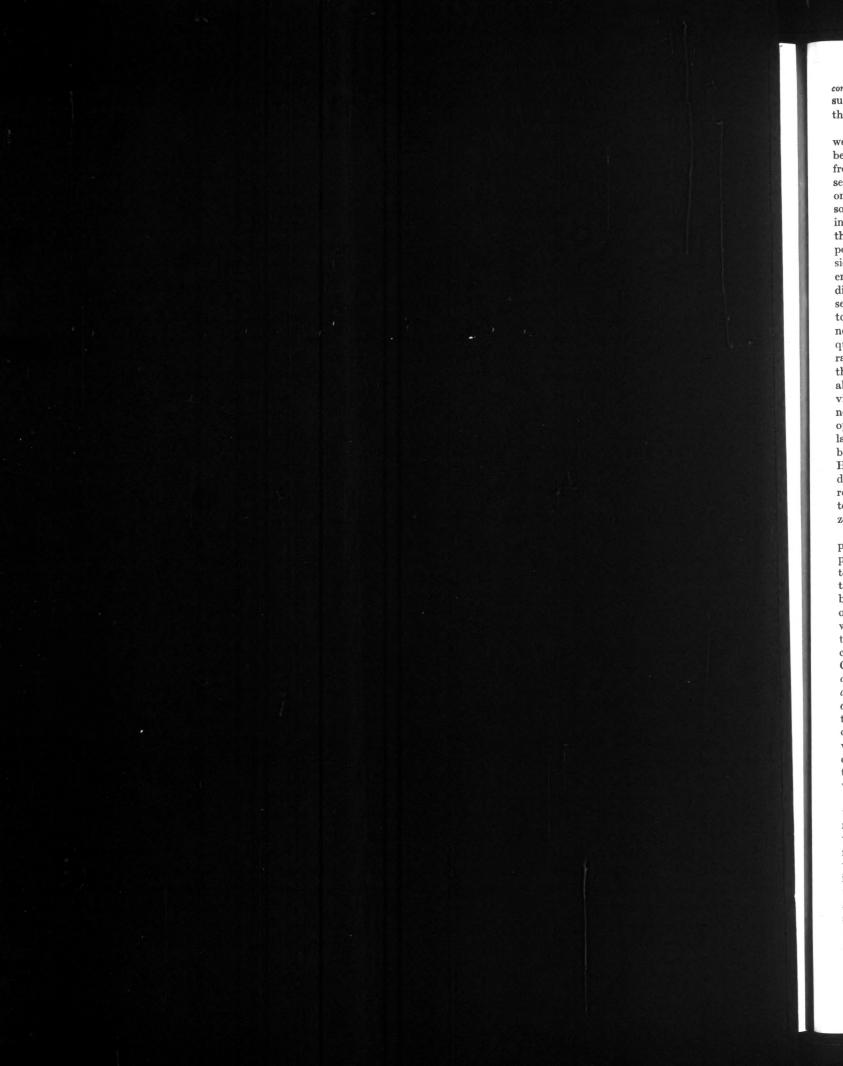


13, inside the church, looking westwards into the nave from the upper level on which the high altar stands. 14, from the nave level, showing the steps up to the high altar and, on the left, the top-lit northern side-chapel. The transverse section through the church above shows the relative height of the main interior and the two side-chapels. 15 (below), the interior of the refectory. '... four columns in the middle (four cylinders) shoot up towards the shade of the roof, giving a feeling of force and a witness of potent methods' wrote Le Corbusier in Vers une Architecture in 1923. (English translation, Towards a New Architecture, 1927), when describing the Casa del Noce at Pompeii.

Dominican monastery, Eveux-sur-Arbresle







continued from page 402]

supposed was never to be interpreted in this way.

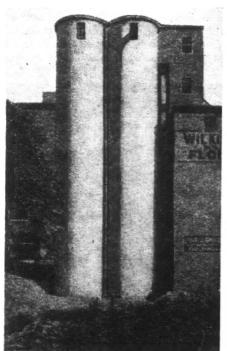
Thus, while other exposures, east and west, at the price of uncomfortable clambering around, may certainly be seen in frontal alignment, they are usually presented, and apparently intended to be seen, only in a rapid foreshortening. Thus, the south elevation, although generally visible in far less abrupt perspective, is still something evidently to be seen from oblique points of view; and thus, though on three sides the monastery of La Tourette is entirely open to the landscape, the conditions of its visibility lead, not to the seeing of the real and tangible voids, but to a consciousness of solids, to an awareness of ranges of verticals implicated in quick succession; of the returns of balconies rather than the presence of the windows at their rear. While, in addition, since externally the building has an extremely high visual centre of gravity, it must also be noticed that the same solidity, the same optical closure which issues from the lateral foreshortenings, is further affirmed by the vertical movements of the eye. Here again, as the eye moves up and down, there is a distinct tendency for it to register the density of under-surfaces and to infer the closest interrelation of horizontal memberings.

Once more, this elaborate divorce of physical reality and optical impression may possibly be uncontrived; but, in the degree to which it sustains images of concentration and inwardness, and in the manner by which it makes prominent the behaviour of the approach façade, it is a phenomenon which now at least may begin to suggest that we are in the presence of the most selfconscious resolution. On the Acropolis, the Greeks, we are told, 'employed the most delicate distortions, applying to their contours an impeccable adjustment to the laws of optics'; and, though we are by no means on the Acropolis, if at this stage the patience can be summoned to re-examine the north wall of the church, there may now be detected admonitory signs which seem to rehearse the types of experience to which one is later subjected.

First, just as La Chaux-de-Fonds, where the blank panel generates a fluctuation of meaning and value and is incessantly transposed from a positive to a negative role in the facade, so at La Tourette: the wall of the church, which is constantly invested with high figurative content and then deprived of it, acts both to call attention to itself and simultaneously to shift attention outwards on to the visual field of which it is the principal component. But while at La Chaux-de-Fonds the fundamental structure of the ambiguity is simple, while this structure is confined to a plane and causes largely an oscillation in

the evaluation of surface, at La Tourette we are presented with a far more evasive condition. It is a condition which involves above all readings of depth; and, while from it there issue a series of disturbances scarcely amenable to any accurate generalization, there are still two approximate tendencies which might be noticed: that the building tends to revolve, to pivot around an imaginary central spike, and at the same time that the building also tends to a supremely static behaviour.

As has been inferred, Le Corbusier presents the north side of his church to the visitor in very much the same way that in Towards a New Architecture he chose to illustrate the Parthenon. He provides, that is, a type of foreshortened frontal perspective which gives importance to the receding orthogonals, but which firmly insists on the priority of the transversals. He offers, in other words, a modified threequarter view rather than a definitely oblique condition; and the visitor is thus made aware of the monastery's western exposure as a significant, but as a nevertheless subordinate, component of the principal figure.



16. grain elevator: one of the original illustrations from Vers une Architecture (Le Corbusier, 1923). Compare with the view of La Tourette: no.7, page 404.

But not to labour this point: at the same time that he does this, it is remarkable that Le Corbusier has also built into this frontal plane of his wall the implication of a depth which by no means exists in reality. The oblique cut of his parapet should now be noticed. It is a line so slightly out of the horizontal that the eye has an instinctive tendency to 'correct' and translate it for what average experience suggests that it

should be. For, being eager to see it as the normal termination of a vertical plane, the eye is consequently willing to read it, not as the diagonal which physically it happens to be, but as the element in a perspective recession which psychologically it seems. Le Corbusier has established a 'false right angle'; and this fausse équerre, which in itself infers depth, may also be seen as sporadically collaborating with the slope of the ground further to sponsor an intermittent illusion that the building is revolving.

Something of the vital animation of surface, the small but sudden tremor of mobility, in the area between bastion and belfry certainly derives from the torsion to which the wall is thus subjected; but, if this phenomenal warping of surface may be distinctly assisted by the real flexions of the bastion wall itself, then at this point it should also be observed how the three canons-à-lumière now introduce a counter-active stress.

For the spectacle of the building as seen on arrival is finally predicated on a basis, not of one spiral, but of two. On the one hand there are the pseudo-orthogonals which, by the complement they provide for the genuine recession of the monastery's west façade, do stimulate an illusion of rotation and spinning. But, on the other, are those three, twisting, writhing, and even agonised, light sources—they illuminate the Chapel of the Holy Sacrament—which cause a quite independent and equally powerful moment of convolution. A pictorial opportunism lies behind the one tendency. A sculptural opportunism lies behind the other. There is a spiral in two dimensions. There is a contradictory spiral in three. A corkscrew is in competition with a restlessly deflective plane. Their equivocal interplay makes the building. And, since the coiled, columnar vortex, implied by the space rising above the chapel, is a volume which, like all vortices, has the cyclonic power to suck less energetic material in towards its axis of excitement, so the three canons-à-lumière conspire with the elements guaranteeing hallucination to act as a kind of tether securing a tensile equilibrium.

Enough has now been said to suggest the intricacy of La Tourette as a perceptual structure, but it would be equally possible to approach its problems with entirely opposite and wholly conceptual criteria in mind; and, though the normal way of seeing a building is, as we have approached here, from the outside in, since the normal way of making one is properly supposed to be from the inside out, it may now be convenient to withdraw attention from the more sensational aspects of the monastery and to consider instead what may be presumed to be its rationale.

The programme for the building was explicit. There was to be a church to which the public could on occasion be admitted. There were to be a hundred cells for professors and students, an oratory, a diningroom, a library, classrooms, and spaces for conference and recreation. Finances were meagre. There was a certain problem of institutional decorum. But though the architect was therefore subjected to certain very definite limitations, and though he was involved with a religious order whose regime was established rather more than seven centuries ago, it cannot truthfully be claimed that the operational requirements with which he was confronted were so very rigid and inflexible as to predicate any inevitable solution.

It is possible to imagine the Wrightian version of this programme: a major hexagonoid volume, proliferating by an inward impulse a variety of minor hexagonoids, terraces and covered ways. A Miesian solution can be conceived. Embryos of the Aalto-esque, the Kahnian and a whole forest of other variants swarm in the imagination. But the number of choices available to any one man, like those available to any one epoch, are never so great as those which, in fact, exist. Like the epoch, the man has his style—the sum total of the emotional dispositions, the mental bias and the characteristic acts

which, taken together, comprise his existence; and in its essential distributions (though with one great exception), Le Corbusier's building is co-ordinated very much along the lines that previous evidence of his style might lead one to predict.

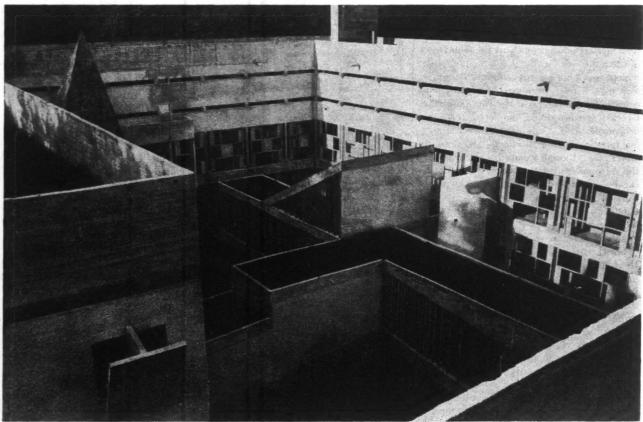
The solution which he has presented—a quadrilateral pierced by a courtyard; with the church on its north side; with the cells deployed to east, south and west in two tiers immediately below the roof; with the library, classrooms, oratory and principal entrance on the floor below this; with the refectory, chapter house and major circulations at the still lower level adjacent to the floor of the church; and with, below this again, the kitchens—is entirely evident from the published plans of the building; and, like all Le Corbusier's solutions, it is both a highly generalized as well as a highly particularized statement.

It could be said that La Tourette, like any other building by any other architect, is primarily determined by a formal preference which is felt to be a logical one. Obviously it reflects Le Corbusier's insistence on volumetric economy; and it would be reasonable, therefore, to suggest that the final premises of the arguments on which it is based are not really susceptible to empirical proof. Secondarily, the monastery would seem to be determined on the basis of category, i.e. by its relation to a series of

propositions which postulate the ideal form of a Dominican establishment, conceived in the abstract, and presumed to be valid irrespective of circumstances of place or time. And, finally, these more or less aprioristic deductions are brought into antithetical connection with specific conditions of locality.

The site was allegedly of Le Corbusier's own choosing. It could be supposed that other architects might have chosen otherwise. But, if a superb prospect verified the selection, it does also seem probable that this particular terrain was chosen for its inherent difficulties. For at La Tourette the site is everything and nothing. It is equipped with an abrupt slope and a lavishly accidental cross fall. It is by no means the local condition which would readily justify that quintessential Dominican establishment which seems to have been preconceived. Rather it is the reverse: architecture and landscape, lucid and separate experiences, are like the rival protagonists of a debate who progressively contradict and clarify each other's meaning.

Above all, the nature of their inter-action is dialectical; and thus the building, with its church to the north, liturgically correct in orientation, separated from but adjoining the living quarters which face the sun, is presented as though it were a thesis for



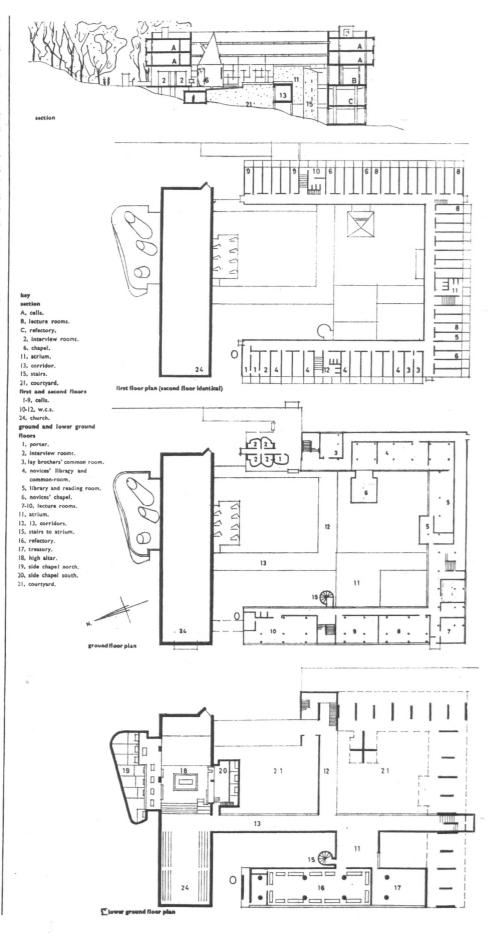
17, inside the courtyard of the monastery, looking down from the roof of the church, near the belfry. The courtyard is crossed by covered corridors. The pointed roo in the left-hand angle is that of the novices' chapel.

discussion; and thus the site inevitably rises to function as counter-proposition. There is a statement of presumed universals and a contrary statement of particulars. There is the realist proclamation and the nominalist response, the idealist gesture, the empiricist veto. But, if this is a procedure with which Le Corbusier has long since made us familiar, and if such is his particular mode of logic, there is, of course, here in the programme a curiously pragmatic justification for its exercise. For it was, after all, a Dominican monastery which was here required. An architectural dialectician, the greatest, was to service the requirements of the arch-sophisticates of dialectic; and there was, therefore, a quite special dimension of appropriateness which inhered to the approach.

But, if the building thus answers to the ethos of the institution, this was surely the mere accident of parallel attitudes, of equivalent rigour. The architect scarcely set out deliberately to provide a plastic analogue of scholastic debate. It was only that his state of mind and that of his clients were co-incident in their astringent quality, and that both parties were ironically aware of their common identity and difference. Above all, it was not a case of the architect mimicking scholastic reasoning so much as it was the presence on both sides of irreproachable intellectual integrity which has disinfected the logical conclusions of the argument of all those conciliatory flavourings which are apt to be the outcome of attempts to bring religious institutions and modern architecture into accord. At La Tourette there are no turgid atmospherics. There is nothing ingratiating or cheap; and, as a result, the building becomes positive in its negation of compromise. It is not so much a church with living quarters attached, as it is a domestic theatre for virtuosi of asceticism, with, adjoining it, a gymnasium for the exercise of spiritual athletes. The figure of the boxer and his punch ball on the terrace or the 1928 project for Geneva has become conflated with the image of Jacob wrestling with the Angel.

However, this is to discuss effects before causes. The play on spiritual exercise as physical gymnastic may be one of the more invigorating themes at La Tourette; but it is a result rather than a determinant, and the immediate causation of the building, apart from the dialectic of architecture and site, ought now at least briefly to be noticed. While, since Le Corbusier has always been frugal with ideas and never mistaken mere experiment or intellectual profligacy for thoughtfulness, the more obvious causation is not far to seek.

There is the famous structural schema for the Maisons Domino, with its concep-



tion of space as something horizontally stratified like the layers of a Neapolitan wafer; and there are the corollaries to this drawing: a denial of the spatial expression of the structural cell, a relegation of the column to the status of punctuation or caesura, and a penetration of the resultant product by a labyrinthine construction of miscellaneous partitions which propagate a centrifugal stress. This is almost all. Basically, it is all by now very old; and as a result there is very little to say about the living quarters of the monastery taken by themselves.

There are the usual elements of wit: an entrance which is possibly a little too Japanese, and the five parlours adjoining it; a spiral staircase which parodies something from a mediaeval building; and the Vincent Scully, it is one of Le Corbusier's megaron volumes, one of those open-ended tunnel spaces compressed between vertical planes which have persisted in his work alongside those more advertised sandwich volumes where the pressure of the horizontal planes is more acute.

Philippiness and the series the factor made

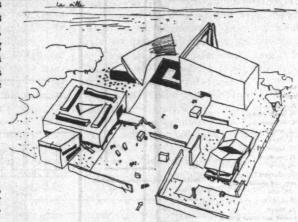
mailteone to mice do a sur containe sur and

Reclaim to the engineer in on one to the net of the

confidence to require the receive of a tree

to distinct the state some winders of

A history of the cross fertilization of the megaron and sandwich concepts throughout Le Corbusier's career would be entirely relevant to the discussion of La Tourette; but it is scarcely an account which can fall within the scope of a short critique and it might now simply be noticed that, while at



18, sketch showing Le Corbusier's La Boite à Miracles of 1954-56, as part of his project for a museum at Tokyo. Colin Rove compares it, as form, with the church at La Tourette.

astonishing Ledolcian fantasy of the oratory as seen from outside. But these are the quodlibets of the scholastic discourse; and more important are the distinctions of emotional tone which the different levels of the living quarters support. This is effected by an orchestration of light. There is a movement from the brilliance and lateral extension of the refectory and chapter house, through the more sombre tonality of the library and oratory, up to the relative darkness and lateral closure of the cells. Thus there are progressive degrees of concentration and intimacy; but if, in their turn, the cells are like a hundred private recapitulations of the church, it is now necessary to close the circuit and to approach this most problematic element.

The quality of the church, in which chiaroscural effects reach their maximum and in which negation becomes positive, cannot be photographed, nor will it here be analyzed. Perhaps as a form it is to be related, not as first may appear to a late Gothic prototype—some King's College Chapel or Franciscan construction in the valley of Mexico-but to Le Corbusier's own (and contemporaneous) Boite à Miracles from the Tokyo Museum. This 'Box of Miracles,' intended as the stage of an open-air theatre, although it scarcely displays the same attenuated volume, does show the same slightly oblique cut of the roof, a similar entrance condition from the side, and an identical hangar-like appearance. To borrow a term from

Tokyo a megaron and a Poissy-type sandwich occur together within the same project, at La Tourette they are so compounded within a single block that Le Corbusier is able simultaneously to secure the manipulation of all spatial coefficients.

To a block one attributes a structural continuity, a textural consistency of space and a homogeneity of spatial grain or layering. While recognizing it to be a hollow and to be empty, one still conceives its emptiness as, in some way, the metaphor for a block of stone or a block of wood. It is exploitable only on the condition of collaborating with the nature which it has been assumed to possess. Or so it might have been thought. But at La Tourette, these precepts which one may often believe Le Corbusier himself to have taught and which one has sometimes felt to be a norm of procedure, are conspicuously breached, and breached with a sophistication so covert that only retrospectively does one become conscious of this means by which he has been able to charge depth with surface, to condense spatial concavities into plane and to drag to its most eloquent pitch the dichotomy between the rotund and the flat. By violating a unity at conception, by jamming two discrete elements within the same block, Le Corbusier has been able to instigate both tension and compression, sensations of both openness and density, and he has guaranteed a stimulus so acute that the visitor is not aware of the abnormality of his experience.

th

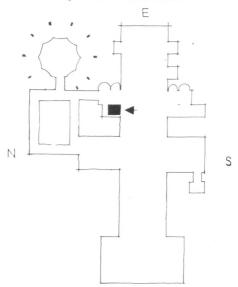


# a monthly review of interior design

# Treasury in Lincoln **Cathedral**

architect : Louis Osman

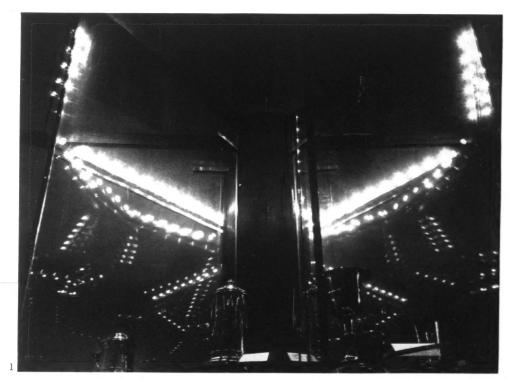
This is the first open treasury to be installed in an English cathedral. It is designed for the display to the public of church plate from all over the diocese and to arouse interest in what the diocese possesses. Lincoln is rich in plate, but much of it is seldom used in the parishes to whom it belongs and is often hidden away and even forgotten. Some parishes are tempted to sell it when they need to raise funds.

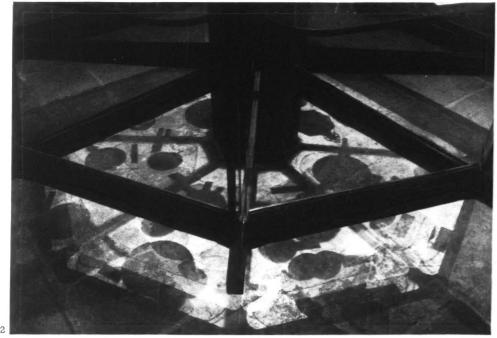


sketch plan of Lincoln cathedral, showing position of treasury

The treasury owes its existence in the first place to a proposal made by Mr. C. C. Oman, of the Victoria and Albert Museum. and to the encouragement and financial support of the Goldsmiths' Company, who hope that the precedent created at Lincoln may be followed in other cathedrals.

The site is at the corner of the north choir aisle and the eastern transept crossing, where a disused chapel was being used as a vergers' and cleaners' mess-room. The





In the centre is a bronze and plate-glass showcase, supported on a shaft of purbeck marble: 1, close-up at the top; 2, close-up at the bottom, with the bronze spokes cantilevered clear of the floor, on which shadows are cast by the exhibits on the shelves.

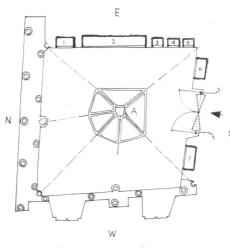
chapel had been made, possibly in the four- plain rubble infilling) contained a doorway; teenth century. by altering the more open that to the transept was still in use and had thirteenth-century plan and adding interior its original oak and wrought iron door; rubble walls. The two original walls had the other, to the choir-aisle, was blocked. double ranges of arcading on purbeck shafts. Opposite the blocked door was a magnificent

Each of the two more recent walls (those of thin octagonal shaft of purbeck marble,

# ID

## Treasury in Lincoln Cathedral

3, the showcase which occupies the centre of the treasury. It is marked A in the plan on the right, on which the dotted lines indicate the raulting above and the numbers refer to the small showcases recessed into the walls. One of these can be seen on the left side of the photograph. 4 (facing page), looking up to the roof, with the showcase on the left, showing the original arcading and windows, the latter now furnished with stained glass.



scale "...." feet

free-standing apart from a coupling at the string course half-way up and carrying so much weight from the vault above that a note was set up when it was struck. The vaulting was irregular, the rebuilding of the choir having been begun and finished at this point, and the two not quite meeting. The plan of the vaulting (see sketch-plan alongside) has been followed in the setting out of the asymmetrical showcase in the treasury. Its shaft is immediately below the off-centre boss of the vault and well out of centre of the chapel. There were, in the original chapel, two lancet windows 25ft. high and 5ft. wide and two small 5ft. by 4ft. windows (probably sixteenth-century) cut into the arcading at eye level.

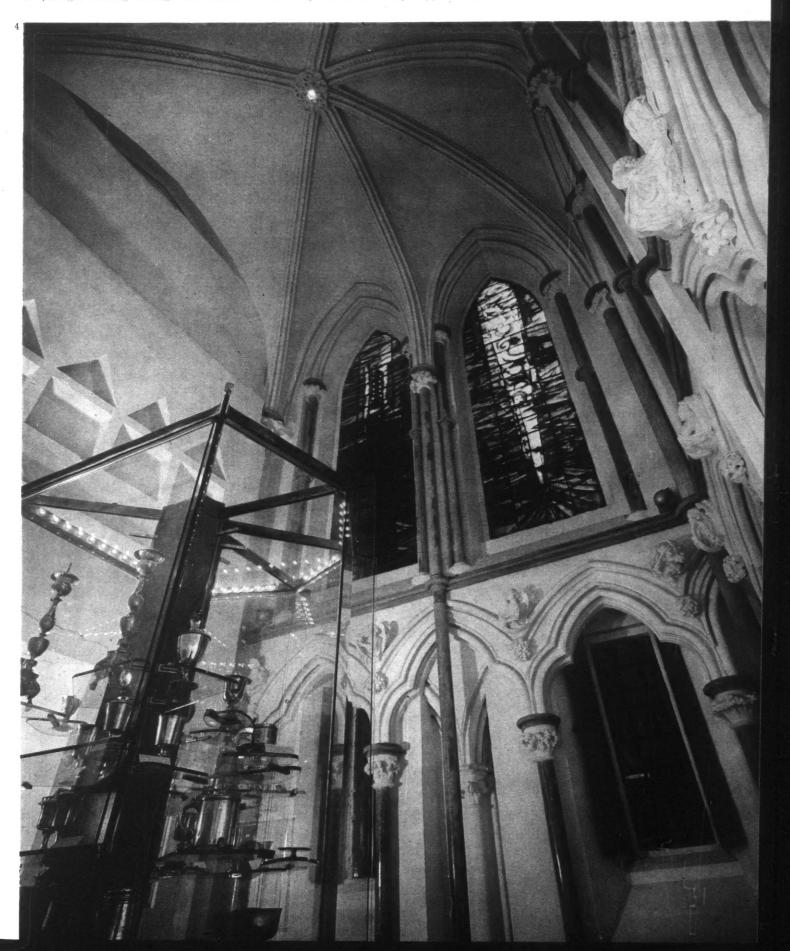
The first problem was to repair the chapel. replacing mutilations which destroyed the original line, removing intrusive features and careless repairs and a number of water and other pipes and cables. The original doorway to the choir was reopened to give an axial view of the shaft mentioned above. the plastering was restored and whitewashed and the purbeck shafts handpolished to preserve their eroded surface The original floor had been replaced and was worn and rough. It was taken up and a reinforced concrete mushroom foundation. 12ft. in diameter, was cast to support the central showcase shaft; above this a waterproof concrete sub-floor with embedded heating cables was laid and the stone slab floor replaced. The only thing then visible above floor level was the top twelve inches of a 6in. steel tube which had been cast into the new foundations to take the electric cables for the central showcase. To this tube were attached the reinforcing rods of the central shaft of the showcase.

This shaft was formed of a 10ft. high hexagonal green purbeck marble tube, 12in. thick, which served as permanent shuttering and was filled with concrete. A wheel of radiating bronze spokes was cast in. 18in. above the floor, and a top ring 10ft. above the floor, with 1in. toughened plateglass fins dividing the case into six compartments and carrying irregularly shaped in. glass shelves. The ends of the bronze spokes are joined by top and bottom perimeter bronze rails with six toughened plate-glass doors hanging from them. The largest of these doors is 9ft. by 4ft., and the total weight of glass supported clear of the floor on the single column is well over a ton. The floor-heating cables are made to run through the central column so that the whole case is slightly warmed against condensation and tarnishing of the silver. The case is open at top and bottom to allow free circulation of air.

Into the two infilling walls of the chapel are cut seven niches of varying size and depth to display additional pieces of plate. They, too, are heated with electric cables and closed by flush frameless glass doors with specially designed locks. They are lined with coarse shuntung silk of seven different, but related, earth colours. The plaster and freestone work in the chapel has been limewashed white, including the vaults, and the ribs of the vaulting lightly touched with gold leaf, which is pushed with a finger into the sinkings in the carving. This gives a little

faces where the metal catches the light from to the showcase below. The lighting of the a spot-light shining through the central cases is by two hundred tiny Krypton-filled

glint and sparkle to the otherwise matt sur- carved boss in a narrow beam directly on



## Treasury in Lincoln Cathedral

5, looking into the treasury from the cathedral aisle, with the grille-door partly open. 6, the interior with the central showcase on the left, the grille-door from the inside and, on right, one of the small vall-cases—see plan on page 412, 7, close-up of part of the grille-door, designed by the architect in verought from and stainless steel—see also the cover of this issue.

miners' lamp bulbs, with the supply transformed to eight volts. These little lamps have a very pure white light and create spot reflections in the silver. They can be looked at by the naked eye without blinding.

The original pointed arched doorway has been closed by a grille of wrought-iron hairpin-shaped splines, narrow in elevation and wide in depth, which form a double thickness, holding between them a screen of cast stainless steel spikes. These are in twelve sets, pointing alternately upward and downward, and are rough in texture. Their shapes are echoed in the four stained glass windows of green-brown-grey glass which have been designed by Geoffrey Clarke.

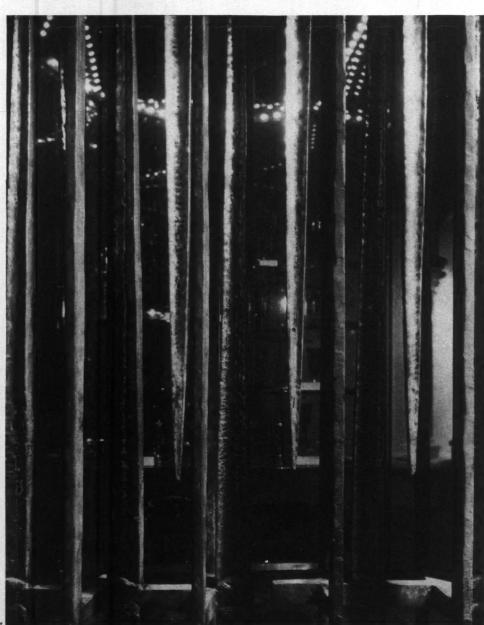




Geoffrey Clarke's sketches for the stained glass in the two lancet windows—see preceding page.









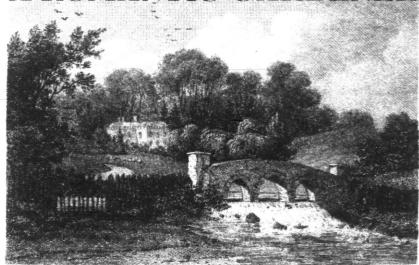
The alm his yar

syntodd fan Mal clas Ys Mal clas Ys Mal clas Ys Mal clas Per was eigl one eitymuthalt alloe esse A qua Hu muthe his ver cou mee of dile the I — a wit pos gen Reje no

in Had accurantic peda in hi

# L. F. GREGORY

# **MALTHUS SENIOR:** A ROMANTIC GARDINER



The name of Daniel Malthus is almost obliterated by time from his gravestone in Wotton churchyard, Surrey-a fact which is symbolic. He is little known today\*, except as the father of a famous son, Thomas Robert Malthus, author of the economic classic on population.

Yet Daniel Malthus hardly deserves this oblivion. He was to his contemporaries a fascinating personality, a man who no doubt was by ordinary definition an-eighteenth-century eccentric one whose reputation for eccentricity was perhaps due quite as much to his opinions as to his habits, though he apparently allowed neither to mar essentially delightful disposition. A friend of Rousseau and acquainted with such figures as Hume and Wilkes, his life touched much that was characteristic of the eighteenth century without his becoming, with rare exceptions, very closely involved. He was a country gentleman of independent means, but with interests outside the normal range of the squirarchy of his day, especially in his dilettantism, his radicalism and the friendships which this involved.

In particular, he was a gardener a devotee of the new† style, with a sense of its romantic possibilities. He became the 'ingenious friend' of Humphry Repton and may well have known Richard Payne Knight. He cuts no figure, however, in the gardening histories, but he is entitled to a modest re-introduction.

He was born in 1730, the son of a man engaged in law and finance, went to Oxford, but left without taking a degree, he travelled extensively and married in 1752. He first lived at Hadstock in Essex, where his grandfather had bought the manor, but in 1759 he moved to Surrey, which was to be his home for the rest of his life. He purchased land and a farmhouse from Abraham Tucker-a Surrey eccentric who enjoyed more than a local reputation as a philosopher. This was situated a few miles outside Dorking, near the Guildford Road between Westcott and Wotton. Here he erected his 'gentleman's seat,' with its 'battlemented parapets and gothic pinnacles,' and named it The Rookery. Here also he fashioned his garden, apparently more or less Picturesque in conception, with rustic temples and grottoes.

The house, architecturally undistinguished, still stands, with a bridle path to Leith Hill running nearby. In two hundred years, however, much has changed; the house is divided into flats and considerably altered in other respects as well; and the layout of Malthus's garden can be recognized only in bare outline.

Turning to early accounts of the estate, Manning and Bray's Surrey (1804-24) is particularly apropos. Bray was Malthus's son-in-law and contributed the notes relating to The Rookery: which was 'a small elegant mansion,' the siting taking 'advantage of its beauties, hill and dale, wood and water, displaying them in their natural simplicity.' John Timbs, in his A Picturesque Promenade

Round Dorking in Surrey,\* fills in this outline with interesting details. They seem a perfect reflection of Daniel Malthus's taste and temperament. Timbs points out that

The descent from the front (of the house) is by a beautiful sloping lawn to the margin of a fine pool of water in the centre of which is a small island, overgrown with shrubs and exotics. The hill behind the house is clothed with a fine beech wood, extending a considerable distance, and intersected by serpentine walks, which formerly led to several romantic buildings, with appropriate dedications.

Timbs adds significantly: 'of several rustic temples grottoes, the erection of which was dictated by his poetical taste . . . few remain.' Brayley, another local topographical authority† of the period remarked that, owing to its position in the landscape, the 'seat has an air of much seclusion'—as befitted an owner who was something of a recluse. Clearly its immediate setting was one of distinctive beauty. Its wider setting was correspondingly beautiful, and even today is one of high scenic attraction, among the best of Surrey's landscapes: 'very few prettier rides in England,' was Cobbett's verdict on the neighbourhood.

Malthus, by his 'embellishment' of The Rookery, was acting in the spirit of the time. A romantic at heart, he inevitably yielded to the spell of the landscape movement

much; but some specific previous circumstance might well have been the real mainspring. It is tempting to pursue this line of inquiry; for Malthus was friendly with a family which occupies a niche in the history of English landscape gardening—the Graves of Mickleton, in Gloucestershire. Malthus's friendship was primarily with the Rev. Richard Graves,\* author of the once well known Spiritual Quixote, who became Rector of Claverton, near Bath. Graves took pupils and Malthus sent his two sons (in-

that was then advancing through

England. What, however, was the original source of his interest and inspiration? There was of course the

force of local example-Surrey had been since John Evelyn's

time, a century before Malthus, a region notable for its gardens, as the Diary of Evelyn, himself a garden designer, shows. It was a nearby Surrey garden, Deepdene, which moved John Aubrey in the seventeenth century to declare that its pleasures were 'so ravishing that I can never expect any enjoyment beyond it but the Kingdom of Heaven.' The county continued in increasing favour for garden making in the eighteenth century, a point which Defoe and later observers have emphasized. All this, with Malthus's basic predisposition, may account for

cluding 'Population Malthus') to

From this relationship, possibilities open out. Either Malthus could have derived his initial impulse or encouragement from Richard Graves's brother, Morgan, who redesigned the gardens at the family home at Mickleton in the new manner; or he could have done so by way of Richard Graves's almost life-long friendship with Shenstone.

Morgan Graves gathered his ideas from a relative in Essex, who in turn was indebted to Philip Southcote's landscape garden at Woburn Farm, near Chertsey, Surrey, which he purchased in 1735.† Southcote is generally credited with being the first to plan and plant a ferme ornee, Woburn, which often served as a model for the middling type of estate. Thus there is a possible line of communication, via the Morgan family, between Southcote and Daniel Malthus.

Shenstone is also possible as a source of inspiration, at first-hand or less immediately. His Leasowes at Halesowen, near Birmingham, became (as Dr. Johnson put it) 'a place to be visited by travellers and copied by designers.' His poetry aside, Shenstone's name stands apart in the eighteenth century for a particular type of landscape gardening—indeed, just the sort that would appeal to Malthus. Their terrains had something in common, and so had their temperaments.

\* 2nd Edition, London, 1823: he devotes several pages to The Rookery.

† Brayley's Topographical History of Surrey (Dorking, 1841-48).

<sup>\*</sup> Described as an 'old friend' by Dr. James Bonar in Malthus and His Work (1924). † This sequence has been described by Richard Graves himself, most fully in his memoir of Shenstone (1788) after being indicated in an earlier book of poems.

<sup>\*</sup> For example there is no mention of him in the standard modern history, Miles Hadfield's Gardens.

<sup>† &#</sup>x27;Newer' would perhaps be the more accurate word for his period but it has a ped-antic air, and Daniel Malthus deplored the pedantry that was invading garden literature in his lifetime.

Richard Graves, in his memoir of Shenstone, claims that it was while visiting the Graves's home at Mickleton in his earlier years that Shenstone 'seems to have conceived the first idea of attempting... the laving out in the modern taste and embellishing his farm of The Leasowes.' Graves admits that Shenstone had previously made some improvement at The Leasowes, but this much is clear at least: the Graves family, William Shenstone and landscape gardening were all closely intermingled. Malthus may well have been involved in some degree, though direct proof is lacking. At all events, Malthus, as a man of taste of his time, would be fully aware Shenstone's garden. features of his own garden that bear a Shenstonian impress seem to suggest this, even allowing that much was done in accordance with prevailing formulae. Moreover, a Shenstone memorial was creeted in another garden\* near Dorking which belonged to John Eckersall, almost certainly a relative of Daniel Malthus.

Two points appear to stand out from this account of Malthus's gardening activities. It illustrates the extent to which the 'middling' man supported and enthused over the landscape movement of the eighteenth century, whereas most of the standard garden histories tend to make it mainly an affair of the large estates — the Blenheims, the Stourheads, etc. It also suggests the speed, given sensibility (or receptivity to fashion) and enthusiasm, with which the idea spread from one to another, with the result that what began in ones and twos had developed in the space of some twenty years into a more or less minor rash, at least in the southern counties.

After all his enthusiasm and pleasure, as we may fairly suppose, Daniel Malthus sold The Rookery in 1768, having occupied it only for some nine years. Was this necessity or choice? He moved soon afterwards to 'a less extensive establishment' at nearby Albury: that house no longer stands and the records are practically silent on his gardening activities there. Did he over-extend himself in the purchase and 'embellishing' of Rookery? The signs, slight, are somewhat ominous, but we do not know all the facts.

Happily, however, he did not abandon his interest in landscape gardening. The anonymous English translation from the French of Girardin,† published as An Essay on Landscape by Dodsley in 1783, is on very good evidence attributed to him.‡ Girardin was

'Rousseau's grave-digger' in Horace Walpole's phrase, from the fact that Rousseau was first buried on his Ermenonville estate. The latter was described as 'The Leasowes of France' (it included a memorial to Shenstone) and Girardin was a pioneer in transplanting the English idea of gardening to French soil; he was an ardent exponent of the Picturesque, the main theme of his book.

Furthermore, Malthus's interest in landscape design was still with him in 1795, only five years before his death. Around that period he enjoyed a 'little snatch of acquaintance'—his own words with Humphry Repton, then the outstanding landscape designer. Repton quotes\* a letter from him written in 1795, which is notable as indicating Malthus's standpoint. Thus he supports the broad professional approach of Repton, though he admits that he had previously leaned too much towards 'the Price and Knight party.' It would seem therefore that Malthus was not a champion of the extreme Picturesque, with its manifest absurdities. In fact, his middle-of-the-road attitude is reflected in his Preface to the translation of Girardin's Essay. The terms of his letter also suggest that he may well have visited Knight's estate at Downton, on which he writes with enthusiasm. It is not unlikely, too, that he was acquainted with Knight, since their political views were very similar, both being zealous radicals.

Malthus's Preface—a rapid sketch of gardens from antiquity to his own day in some seven thousand words-is noteworthy almost as much for what it excludes as for what it contains. The book, it has been remarked, 'somewhat annoved the English because neither author nor translator accorded due recognition to English accomplishment in this sort of gardening't-that is, the variety of the Picturesque; although Walpole, speaking of the French edition, recognized 'some sensible ideas in it.' Malthus. in self-defence, might plead that his Preface was not intended as an academic exercise, but merely as a light-hearted essay with a passing glance at favourite names and points of interest. All the same, the absence of any mention of Shenstone stands out, since one supposes that there might have been at least a special bond of sympathy between them: likewise unmentioned is John Evelyn, who

spent his last years at the Evelyn estate which adjoined Rookery. Yet Evelyn was himself the translator of French books on gardening (in the old style), was the author of Sylva, and was responsible for the well-known garden design at Albury Park, little more than a stone's throw from the house where Malthus lived when he made his translation. Their bones, however, lie in neighbourly proximity -Evelyn's in Wotton Church and Malthus's in the churchyard. Malthus, true to his instincts, allows the poets some influence on English landscape garden development-i.e. Gray, Thomson and Mason; he writes approvingly of 'gardens marked by the poetical spirit'; is appreciative of Walpole's history of gardening; and also of William Kent, His Preface, with its sprightly quality, also has a casual air about it, and this may well be symptomatic of the character of its author.

This translation of Girardin's little book indeed offers the clue to much in Daniel Malthus's life. The frontispiece consists of a view of Rousseau's grave at Ermenonville, and in the Preface he explains the reasons for his pleasure in the subject-in part because 'it is wrote by the friend of Rousseau' (his italies) and from scenes which 'realise some of his [Rousseau's] most beautiful descriptions,' recalling his 'sublime pictures of Switzerland': all this several vears after Rousseau's death and when Malthus himself was over fifty. Rousseau was still, as he had long been, a central influence in his life. Malthus's regard for him was little short of idolatry. This is evident from his surviving letters to J-J, as when Malthus pleads, in a letter in 1767:

'Est-il possible, Monsieur, que vous ayez reçu ma lettre, et que vous me refusiez les deux mots que je vous demandois. Je ne veux pas le croire. Je ne donne pas une fausse importance à mon amitié. Ne me respectez pas, mais respectez-vous vous-même. Vous laissez dans le coeur d'un être semblable au vôtre une idée affligeante que vous pouvez ôter. Ce coeur qui vous aime si tendrement ne sait pas vous accuser.'

Doubtless the appeal of Rousseau lay in his attitude to nature, as one of the foundingfathers of the Romantic Movement; the character of his political doctrines, with their equally romantic stamp; and his momentous educational theories. Malthus was closely concerned—one of the few records of him as a man of actionin the settling of Rousseau in England after his flight from the Continent in 1766. In concert with Hume, who had brought J-J to England, Malthus was anxious to house him in his own neighbourhood, and during this period Rousseau, accompanied by Hume, visited him at The Rookery. This plan, however, was abandoned (through no fault of Malthus) in favour of J-J going to the Peak

district. In all the subsequent quarrels and recriminations that engulfed Rousseau and his friends in this country, Malthus's relationship with him was entirely unruffled and remained so till J-J's death.

Their relationship was perhaps influenced by a soothing recreation which they had in common: their botanizing. Malthus, besides his interest in the poetics of landscape gardening, was a keen student of botany. He helped Rousseau with botanical books whilst he was in England and these books, with Rousseau's name in them, together with a box of plants given him by Rousseau. appear in his will.

After Rousseau's death in 1778. Malthus eventually transferred much of his hero-worship to William Godwin, extremist radical philosopher and propagandist and interpreter of the French Encyclopaedists England; now most widely remembered as the husband of Mary Wollstonecraft and the father-in-law of Shelley. It was Daniel's Godwinism which was the immediate occasion of his son Robert's book on population,\* for Robert had formed his views largely by way of reaction to his father's. Robert's sub-title offers 'Remarks on the Speculations of Mr. Godwin,' while in the Preface Robert states that the book 'owes its origin to a conversation with a friend on the subject of in his Mr. Godwin's Essay' Inquirer. That 'friend' Robert's father, as he disclosed later, his father having 'warmly adopted the opinions of... Godwin,' which had 'often been the subject of animated discussion between them.'† Thus Daniel Malthus, despite 1789 and its aftermath, was a thorough-going radical to the end. In other ways his outlook was by no means conventional for a man of his time and circumstances. On the whole, he remained faithful to his ivory tower, a fireside philosopher and confirmed dilettante, taking no active part in local or national affairs.

It is searcely surprising, therefore, that when he died at the age of seventy in January 1800 The Gentleman's Magazine should have referred to him, in an obituary note, as 'certainly an eccentric character in the strictest sense of the term.' He is also described as 'a man of taste and learning,' which in its period context hardly open to question. His William Bray emson-in-law William Bray emphasized his 'most pleasing manners' and his 'most benevolent heart,' which rings true enough. Although there is no known adult portrait of him, this hardly seems to matter, since a picture shadows forth, from the scanty records of his life, of a man who, whatever else may be said of him, was eminently amiable and likeable.

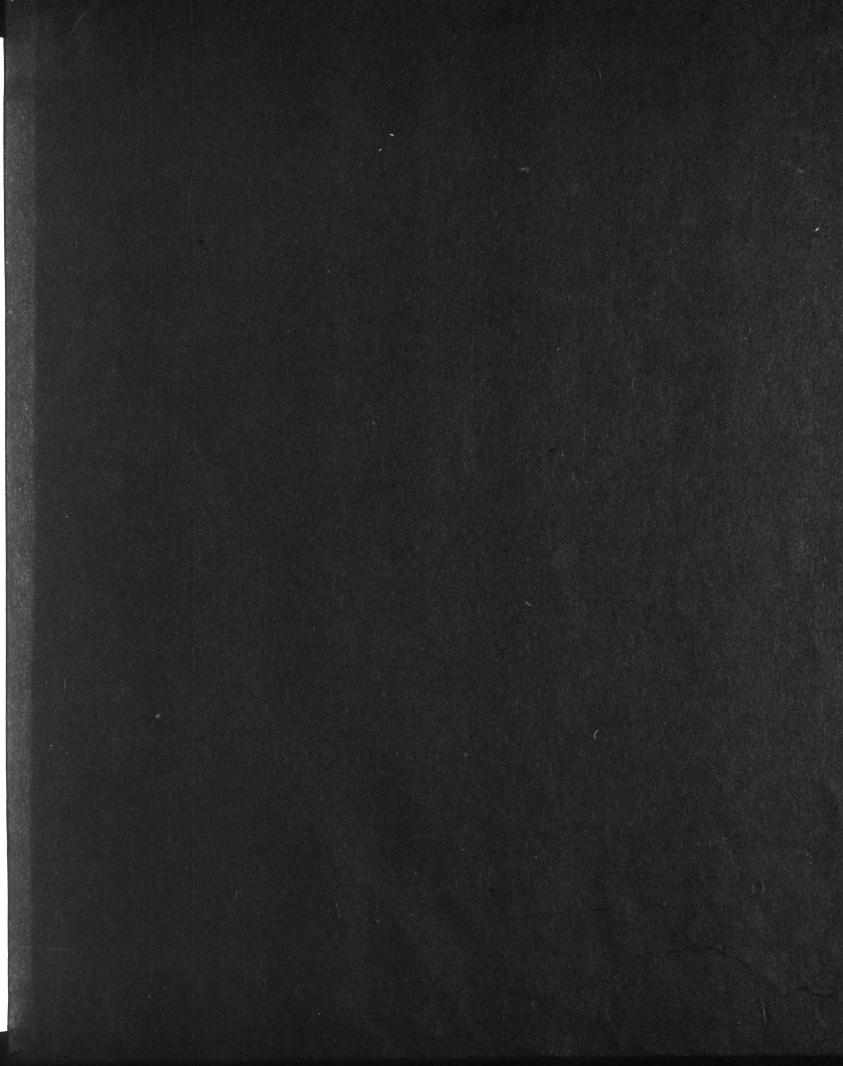
Essay at any rate, Robert was mistaken. Thus the style—a very distinctive style—together with the finer shades of thought and feeling of the translator's Preface and his notes, accord perfectly with all that we know acout Daniel Malthus otherwise. Humphry Repton, with the advantage of acquaintance with Daniel Malthus, refers to the book as 'his translation'; Lord Keynes, who saw the remains of Daniel Malthus's library some thirty years ago, found a note in a copy of the book there which attributed the translation to Daniel. Essay at any rate, Robert was mistaken. Thus the style—a very distinctive style— \* Burford Lodge, built by John Eckersall, 1776: Thomas Robert Malthus married into the Eckersall family. † Rene Louis Girardin (Victe. D'Ermenon-ville), De La Composition des Paysages, Paris, 1777.

<sup>\*</sup> Observations on The Theory and Practice of Landscape Gardening, 1803.
† E. W. Manwaring, Italian Landscape in Eighteenth Century England (New York,

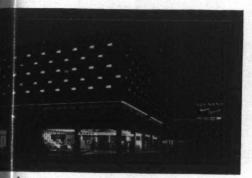
<sup>\*</sup> An Essay on the Principle of Population, as it affects the Future Improvement of Society. (London, 1798.) † Bishop Otter, a life-long friend of Robert, from whom he had the information.

<sup>†</sup> On 'very good' rather than irrefutable, evidence, because Robert, after his father's death, denied that he (Daniel) had ever published translations. There is, however, no reasonable doubt that, in regard to Girardin's

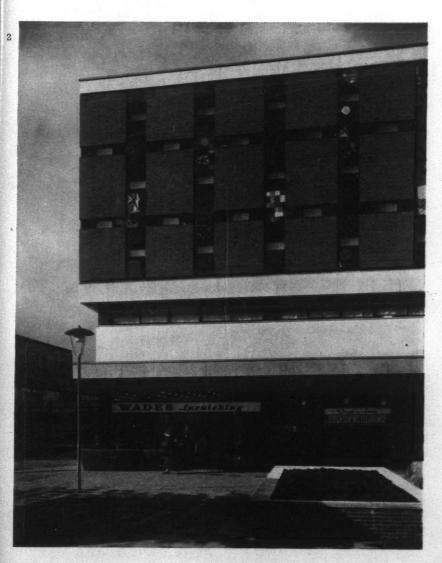
<sup>416</sup> 



# current architecture



1, night view from the south-east. On the right is the glazed entrance tower. 2, close-up of the south-east corner showing a detail of the mosaic decoration by Fred Millett on the walls of the dance hall. The interior of the dance hall is artificially lit—the glazed panels in the wall are lighting units to give an exterior pattern to the building at night as in 1.



### DANCE HALL, COVENTRY

ARCHITECT: ARTHUR LING (City Architect)

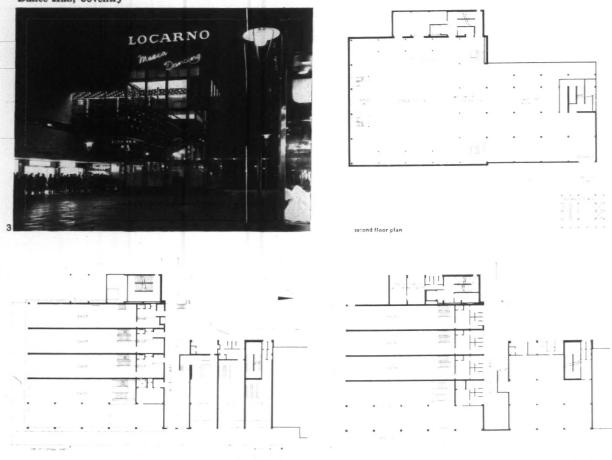
Incorporated in the central precinct by the city council as one of their measures aimed at bringing life and movement back into the pedestrian shopping area after the shops have closed for the night. The dance-hall block is in the middle of the shopping area, and completes the development at the intersection of the two main pedestrian precincts. Shops occupy the basement, ground and first floors, with service access at the rear, and the dance hall itself is at second floor level. To avoid any interruption of the shopping frontage, and to give the dance hall entrance a separate identity and significance of its own, a glass entrance tower stands forward of the main building in Smithford Way, linked by a bridge to the foyer on the second floor. The tenants of the shops should be responsible for their own shopfitting, and the Mecca organisation, who have leased the dance hall, are responsible for its interior. These pages show only the exteriors, designed in the City Architect's department.

The general massing of the main block conforms to the established pattern of the precinct, but because of the building's dual function, the elevational treatment has been handled in a different way. Above the ground floor canopy the shops are faced with Portland stone, which acts as a plinth to the dance hall above but is separated from it by a continuous strip of glazing. The dance hall itself is outlined at top and bottom by fascias of white Sicilian marble and is faced with rectangular panels of grey facing bricks set against a background of brightly coloured mosaic, in an abstract design by Fred Millett. A series of rectangular lighting units is incorporated to provide a regular, illuminated pattern after dark. The entrance tower, and the lift shaft within, are fully glazed so that all vertical movement is visible from the outside. The top row of glazing is coloured to act as an opaque screen to the lift motor room and a background to the

The structure of the dance hall block is of reinforced concrete with the basement walls designed as deep beams carrying the basement and ground floors as well as lateral earth pressures, and partially built over the newly culverted River Sherbourne. The roof is spanned by deep steel trusses, within which are heating duets and catwalks. The entrance tower has an exposed steel structure consisting of 6 in. box-section stanchions welded to transomes, forming a frame at 6 ft. centres to take the galvanized steel sashes.

Principal architect, D. Beaton. Group architects, K. E. Bradley, W. M. Armstrong, R. J. Edwards, H. W. Pearson. Quantity surveyor, R. F. Lear. Consulting engineer, Granville Berry (city engineer and surveyor).

Dance Hall, Coventry



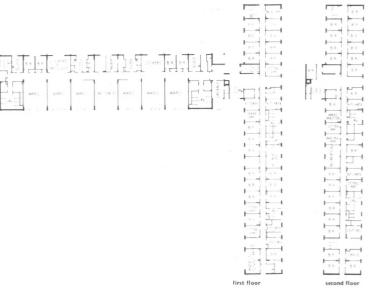
first floor plan

3, close-up of the entrance tower at night. 4, from the south-east.





5, from the west. 6, the entrance in the three-storey block. 7, typical ward interior.





# INFIRMARY, ROYAL HOSPITAL, CHELSEA

### ARCHITECTS: MINISTRY OF WORKS

To replace the infirmary destroyed by bombs in 1941. Built for the War Department to serve the 400 pensioners at the Royal Hospital, it is sited east of the main buildings with its approach from Chelsea Bridge Road.

The L-shaped plan has a two-storey ward block and a three-storey block for staff and out-patients, the latter with a terrace along its whole length. The ward block provides 72 beds in four wards, and eight single rooms. The staff block contains the doctors' consulting-rooms, examination-rooms, dispensary and X-ray rooms and, on the upper floors, bedrooms and recreation rooms for nurses, male orderlies and domestic staff; also a matron's flat.

The building has a reinforced concrete exposed frame, finished smooth with a Portland stone aggregate. Wallpanels are 11 in. cavity brick or metal window units with green slate panels beneath.





### EXHIBITIONS

THE AMERICAN MUSEUM IN BRITAIN

Claverton Manor in Somerset has become The American Museum in Britain and opens to the public this summer. It is the first museum of American decorative arts to be established outside the U.S.

Much of the furniture and furnishings so far collected has more in common with the things our forebears made for themselves than with the things they made for their masters, and I think many people will find the atmosphere of this museum far less remote and in a sense less 'alien' than England's stately homes.

The house, 1, was built in 1820 to the designs of George IV's architect, Sir Jeffry Wyatville, and is dramatically sited on the crest of a hill, presumably for the sake of

the marvellous view across the valley of the Avon. It has a charming central staircase hall and a very pretty roof-light, but according to Ian McCallum, the director of the museum, the rooms were of little architectural consequence, and they have been drastically and ingeniously altered to

accommodate a series of display rooms designed to re-create the atmosphere of some typical American homes from the seventeenth to the nineteenth century. The example reproduced, 2, is an early nineteenth-century New England bedroom with stencilled wall and bedspread. The emphasis is upon settlement and domesticity in New England and some of the other Eastern states, but the reconstruction of an eighteenth-century tavern in Massachusetts, with a fenced-in corner bar to protect the barman from his customers, is a reminder that all the roughness was not out west.

Decorative crafts which have never been practised in this country—I have in mind such things as the stencilled floors, the sponge-painted furniture and the hooked rugs—make a remarkable contribution to the general effect of an American way of life, and although there was no place for their work in some of the later interiors, where the original occupants were evidently exercising a consciously superior taste, it is the spirit of the men and women who practised these crafts that gives the museum its unique atmosphere and different vibration. Their simple but happy discoveries give one the impression of having been made under the spur of expediency, as if they were intended as trompe l'oeil substitutes for more expensive effects. But there is no deception. The love of making has produced its own standards and given each such craft its modest but total independence of Europe.

The prevailing sense obtained in the museum of being in the presence of an art of the people by the people for the people is supported and underlined by a loan exhibition of works from the famous Abby Aldrich Rockefeller Folk Art Collection at Williamsburg, Virginia. This exhibition has

been installed in the stable block, an interesting semi-circular building which has been converted into a modern and peculiarly effective gallery. The deep curve makes it impossible to see the whole of the interior from any single viewpoint, and because it keeps so much of its space in reserve, the visitor is in a state of anticipation up to the last moment of viewing. It is almost the perfect solution for the one-room gallery.

The 'folk' art of White America has to bear this faintly denigratory name because it is the work of men who were skilled in various crafts but had no training in the techniques of the figurative arts and no knowledge of art history. It has some of the characteristics of the arts produced for provincial courts and by peasant communities in Europe, but was not made for a closed society and does not endlessly reproduce a few frozen conventions. The paintings were made by furniture decorators, coach-painters and house-painters in response to the need of an expanding democracy for a figurative art. Up to the middle of the nineteenth century, when its main functions were abruptly taken over by photographs and reproductions, it had an expanding market, and although most of the work is concentrated in the Eastern states where craftsmen were more plentiful, there was no lack of commissions for the artisan-painters who went into the agrarian South or the pioneering West. The stiffnesses and quaintnesses of the paintings were not an expression of conservatism; they were, so to speak, temporary solutions, documents of an artdesire which contained the seeds of a specifically American contribution to

The qualities of the craft-work which find their way into the paintings—the linearism, the simplification of forms, the feeling for the silhouette—are beautifully exemplified in most of the objects on view. The Indian archer in sheet iron, 3, is a locomotive ornament. Figures of Indian warriors were particularly popular with the early train crews, who were often permanently assigned to a particular engine and used these figures both as talismans and as emblems of possession. They were probably made by some of the men who fashioned the weather vanes. There is the same vivid use of the silhouette in a fine iron vane of a snake, 4; and a superb polychromed wood vane of a cockerel, 5, discloses powers of inventive formalization which bring to mind some of the great animal conventions of primitive and archaic cultures.

Hunting wild fowl over decoys, an art



which the White Americans learned from the Indians, gave the 'whittlers' as they were called an equal opportunity for fine carving, and although their formalizations had to take more account of appearances, some of them are quite superb. There were two kinds of decoy, floaters for the water birds and stick-ups for the shore birds. The example here, 6, is a stick-up of a blue heron.

The lines of a child's hay-fork made of wood, 7, have the same spontaneous elegance as the lettering and silhouettes of footwear in the sign painted around 1790 for the bootmaker, Josiah Turner, 8. But it is in the paintings, almost always more naïve than the craftwork, that the craft qualities mingle with the dreams and pieties of the people and bring out the sense of America as a place with what D. H. Lawrence called 'a different polarity with different stars.'

The symbolic mourning card was a popular wall decoration. The example shown in the frontispiece on page 372, top, containing the more or less fixed elements of church, willow tree, mourners and monument, is in memory of Polly Botsford who died in 1813, and the two little headstones commemorate the early deaths, many years before, of two of her children. Probably the handsome tomb on the card has no relation to the facts and was simply a poor man's way of doing the right thing by the dead. It seems to foretell the Whispering Glades Memorial Park and the elaborate gangster funerals, but it may well have functioned, in an oblique way, as a card of identity for the mourner, in a rapidly changing world.

But the portrait is of course the best card of identity, and it was the portrait that was in the greatest demand. The portrait of Polsa Pianna Bull Dorr, 9, for instance, is one of four paintings in the exhibition devoted to the same family, but it is difficult to tell whether there is a family resemblance in the portraits or whether they look alike because they were all painted by the same artist. They were done in 1815 for a well-to-do physician living in New York, who, incidentally, invented the first threshing machine. It is an indication that these primitive portraitists worked for all classes of society, and that either their clients preferred these erisp stiff linear formalizations to more naturalistic modes or that there were not enough academically trained painters.

The portrait of Lydia and Tabitha, 10, by an unknown artist, was painted some twenty years later, but is even more primitive, and one suspects that the identity of the sitter is established more through the dress she is wearing and the presence of her cat than the treatment of the head. The costume details suggest that



the painter was trained as a furniture decorator.

Identification through incidentals rather than a definite likeness is carried to extreme lengths in 'The York Family at Home' (see frontispiece, page 372, bottom), painted by Joseph H. Davis who gave up farming to work as a portrait painter, travelling through south-east New Hampshire. Over a hundred of his watercolours have been identified, and although they are practically identical in composition they have different details. The name of the news paper changes, the child is older perhaps, or not there at all. The cat changes position and the table its shape. It's clear, in fact, that he put in just enough things that the clients could recognize as their property to enable them to see the purely schematic figures as themselves. It brings to mind Elizabethan portrait painting, with its conventional likenesses, elaborate attention to costume, jewels and emblems of rank.

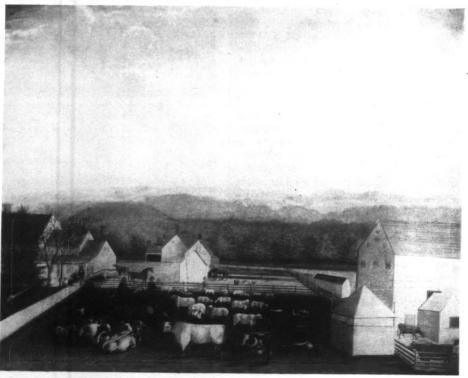
The picture on the York family's wall is probably intended to represent their own house, and the painting of simple architectural subjects was peculiarly suited to the artisan-painter's linear style, and his love of 'finish' and sharp edges. 'Poestenkill, New York, Winter,' 11, is a case in point. It is one of a series of five in which the seasons change but the buildings, the people and even the horses remain exactly the same.

The most important painter in the exhibition is Edward Hicks, and it is in his work that one perceives most clearly the links with other aspects of American painting. 'Penn's Treaty with the Indians,' 12, based on a print of Benjamin West's painting of the same subject, brings out his naïvety and his need for a certain kind of perfected clarity, or his adherence to what might be called an ideal of total emergence. In this picture, even the names of the people who have signed the treaty can be clearly seen. He puts the same scene into the background of his several versions of 'The Peaceable Kingdom,' which illustrates the biblical prophecy that the lion will lie down with the lamb. Hicks was apprenticed to a coach-maker and became a sign-painter. He was an ardent Quaker and became quite famous as an evangelical preacher, but he suddenly realized that he was proud of his oratory, and decided in a spirit of self-chastisement to devote himself to picture-making and became in his own words 'nothing but a poor old worthless insignificant painter.'

The most beautiful and haunting picture in the exhibition is Hicks's 'Leedom Farm,' 13, painted in 1849. It is like a counting of blessings. The farmer himself is there, and his wife, father, mother, brothers, sisters and nephew, together with all the stock, standing slightly apart from







one another and perfectly still, for a magical stock-taking. The treatment of the farm buildings is extraordinarily fine; they have somehow been transformed into symbols of order and belief, as if they were places of worship. Every detail is matter-of-fact yet remote. It is a dream of a settled believing community. And it probably remains an American dream. The same quality can be found in the paintings of the American luminists, in the work of present-day precisionists like Demuth and Sheeler and in some of the American dwellings which have made so striking a contribution to modern architecture.

The director of the American Museum in Britain is probably much more keenly aware of these lines of continuity in the American arts than I, and the fascinating material he has already collected, together with his plans for collecting and exhibiting contemporary work should lead to a better understanding here of the strength and validity of American idealism.

Robert Melville

#### PLANTS

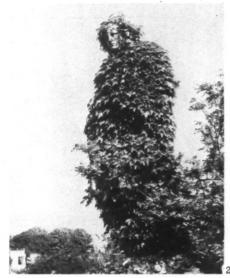
CREEPERS

There can hardly be an architect alive who is not aware of the detrimental effect on walls of ivy and Virginian creeper. Both practically eat the mortar and are guaranteed long-term demolition agents. Ivy, the poor man's tile-hanging, is the worst. What is often wanted is a self-clinging vine-like type of climber which will cover a blank wall without ultimately pulling it down, and prosper in sunless aspects. There is nothing better in this respect than Parthenocissus Henryana (syn. Vitis Henryana). It is neither sufficiently known nor grown.

1, Parthenocissus Henryana.







2, Virginian creeper netting a statue in winter (taken in the Crystal Palace Gardens). 3, the same statue in summer.

This non-fruiting deciduous vine climbs by means of very small suckers but takes a light hold. It has a beautifully marked five-fingered leaf form, dark green with silver veins, and wine-coloured underside, and creates a delicately ruffled rhythmical effect. A single plant is capable of curtaining a wall 15 ft. high and wide in three or four years, requiring only initial vine-eye support.

The roots should be placed at least 9 in, from the wall in a well-drained situation, the hole being partly filled first with well rotted compost and a dressing of leaf mould applied each spring. It is difficult to take cuttings, unlike fruiting vines, but it can be propagated by layering. It develops its best foliage colour in partial shade. Prune dead growth in late spring. This wall covering combines well with one or two unpretentious old-fashioned rambler roses such as Félicité et Perpétue (Hillier's), which have clusters of white pompons with pinkish tinge, and makes a beautiful dark background for tall lilies.

Ivv and Virginian creeper should be deployed not as agents of destruction but to produce remarkable effects on indifferent statuary, on specially designed vertical structures, on tombstones and treestumps. Why should not architects construct larger-than-life figures in rough concrete destined to be clothed with ivy, producing the effect of mysterious outdoor presences, perennially green? There is a very impressive 'green' garden on the chalk down near Wilmington, a formally set-out pattern of ivy-covered pillars linked by rope swags similarly clad, on a rising slope of thyme-encrusted turf. I notice a tremendous neglect of the vertical element in garden planning.

In Victorian times ivy was also used as a formal edging for flower-beds. This was

particularly effective in sunless frontgardens where the centre was taken up with ferns and other shade-flourishing plants like Epimedium (E. versicolor sulphureum is a particularly good one) and Heucherella. Now that more imagination is being used in setting out these small areas with paving, pebble-pattern, concrete disks cast in wheel rims, sculptural three-dimensional effects can be created with plant material of this kind. The Sunningdale Nurseries, Windlesham, Surrey, list ten ivy species, some of which are particularly suitable for use as ground cover. See their Modern Florilegium by G. S. Thomas. A London gardener I know grows fourteen different ivies in an overshadowed space, each one having a fine leaf form, the varying tones of green providing subtle effects. Some of these fine leaved ivies are sold as 'Indoor Plants,' Thomas Rochford cultivates many of them for this purpose.

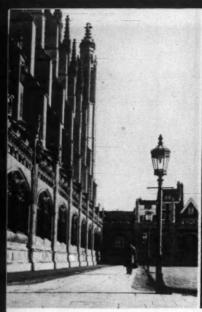
Patience Gray

#### LAMP-POSTS

DECLINE AND FALL IN CAMBRIDGE\*

The spatial intricacy of Cambridge has been well described by Dr. Pevsner in his 1954 volume in the Buildings of England series: 'Large and small, monumental and intimate, stone and brick, manmade and nature-made stand close to each other and often interwoven with each other. Small court follows large court, turfed court follows cobbled court, open court follows closed-in court. Open courts, i.e. courts open on one of their four sides . . . establish a relation between college space and surrounding outer space rare at

\*Photographs by Andrew Schumann.







Oxford.... As for contrasts of scale, the chief source of delight is the survival of cottage property in the streets of the town close to the colleges.'

Neither in Dr. Pevsner's book, nor in the massive volumes recently published by the Victoria County History and the Royal Commission on Historical Monuments, is there any study of the specific ways in which this tight yet informal network of courts and passageways is linked together by street furniture. In the last ten years, one of the principal links has been gradually dismantled—the splendid series of early nineteenth-century lamp-posts and lamp-brackets.

This first scheme, begun in 1823, was carried on into the 1840's, the final circuit consisting of 362 gas lamps. The lamp numbers of the original numeration, in force until 1926, can often still be made out, painted on nearby walls. All the lamps survived into the present century, though the 1890's replaced the squat but dignified lanterns with a more conventional tapered design. Removal started just before the last war; in the main streets the remainder were replaced in 1955-8. Only in the side streets can still be gained some idea of their original quality; and these are at this very time making way for yet another scheme, begun in 1960.

At first sight the old lamps seem identical in design. The strong classical shape, like most English Renaissance work, stops well short of monumentality. The survival of such traditions into the mid-nineteenth century is paralleled in most country towns, in Literary Institutes and Corn Exchanges. Like these much neglected and little studied buildings, these lamps show, within the classical tradition, a remarkable variety of design and siting.

There are 13 set types of design, and 26 variations on them. They were conceived as an integral part of the street design, and were placed in key positions, not only to give light in the hours of darkness, but also

to define more closely the spatial relationships by day. The pictures reproduced here show how, in the open spaces, their standard size forms an easily read scale of the space and mass of the surrounding buildings, like a measuring post in an archæological photograph. In the narrow connecting passageways, brackets of differing design sprout from the side walls in silhouette and lead the eye towards the next open space, marked by a lamp standard.

Lamps in the colleges, of the same period, help to link the courts to the cottages, internal space to external. The finest series is that designed by William Wilkins for King's, 1. It can be seen in this picture how Wilkins's lamp standards create a spatial passageway between the giant walls of the chapel and the broad flat lawn. The design of the lanterns echoes that of the cupolas. The human scale of the standards bridges the gap in scale between the chapel and the houses in King's Parade seen across and through Wilkins's screen.

2 is taken in All Saints' Passage. This gaunt cleft between Salvin's Whewell's Court of Trinity on the left and the tall Regency brick wall on the right is closed by the contrasting prettiness of the trees in the former All Saints' churchyard. The bracket and the standard are unsentimental in linking passage and tree.

In Round Church Street, 3, the standard is placed decisively in the centre of the passageway. On the left, Waterhouse's Union Society, remodelled in 'early modern' by Harold Tomlinson (1932). Cottages on the right are to be demolished this summer to make way for a central car park.

The lamp in Senate House passage, 4, stands beside the Gate of Honour at Caius; attempts have been made to have it removed for the tourist cameraman's sake. Yet seen through the gate it acts as a splendidly firm axis for the complicated double-S bend of Senate House Yard—Cambridge's most satisfying paved space,

enclosed by Gibbs's railings. Notice in the photograph how it links the bicycle and undergraduate to the monumentality around.

Brackets at Caius are splendid representatives of that High Victorian brio so much more in evidence at Oxford. Waterhouse's building is much abused, because it has a silly tower on the best site in Cambridge; but, internally, Tree Court is an object lesson in the relationship between high and low buildings in a college (a contentious question to-day), and in the interpenetration of courts by arches and passageways, clearly marked by lamp brackets. 5 shows Waterhouse's excellent





florid brackets of 1870, linking the muchabused five-storey block to the intimate two-storey buildings on the other side of the court. These two brackets emphasize the paved path to the dark passage in the corner; the path is sucked down four steps and changes direction twice to reach Gonyille Court.

The rot set in some time between the Arts and Crafts baroque brackets designed by George Gilbert Scott (son of Scott) at Pembroke (1883), and the loathsome pieces



of 'concrete Georgian,' 6, dumped in the Backs next to Clare by Sir Giles Gilbert Scott in 1925. No comment is needed on these. The avenue which used to hide the lamp in the picture has just been cut down, and no decision to replant it is to be taken for eighteen months.

In 1955 the City Council began the scheme of electric lamps in the main streets. These lamps were designed by Sir Herbert Manzoni, City Engineer of Birmingham and now President of the Institution of Civil Engineers. The art touches, fluting, etc., were supplied by Sir Albert Richardson, then President of the Royal Academy. Big names, big lamps. Richardson's columns, executed in best bronze at a colossal cost, bear a close resemblance to those he was installing at the same time in St. James's Church, Piccadilly. Manzoni's lights, with their cylindrical lanterns, have almost no downward reflection, and glare balefully into first floor windows, while leaving pools of darkness in the streets beneath. In Trumpington Street they are it times placed as near as 34 feet to each other. At night one is aware of nothing but a grandiose procession of triumphal columns of light leading nowhere. The

Royal Fine Art Commission gave its consent. The lamps have been objects of derision ever since they were put up. 7 shows Sir Edward Maufe's king-size bungalow at St. John's providing the background to a terrible muddle, with Richardson's columns sticking up everywhere. This is the vital road junction of Cambridge's two axes, Trumpington Street—King's Parade—Trinity Street and Hills Road—Regent—Street—St. Andrew's Street—Sidney Street. Note the garage at this awkward spot, jammed in to a medieval cottage. It is all very sad and messy.

8 (St. Catherine's Forecourt), is a Trumpington Street lamp that was to have been removed by the Council, but the college bought it and its neighbour, a praiseworthy act. The college has since painted them black and gilded the ears and pinnacles of their lanterns. The authorities have left ungilded their 'Bus Stop' notice.

For their 1960 scheme the Council decided to 'go modern.' The lamp-standard they chose is quite a good design, but not for Cambridge. A stockade of them as in West Road, 9, is unpleasant. Larger lights would have been better. Note the solidity of the old lamp in the foreground. An ironic result of the subtopia controversy is the popular idea that concrete lamp posts are irremediably bad. So they are on new housing estates, where their brute force overshadows the flimsy houses. Cambridge is one of the few places where the buildings would stand up to the bulk of concrete.

The aluminium sodium lamps being installed at Cambridge are flimsy in contrast to buildings, and their small size means that on main roads they have to be placed exceedingly close together as the picture shows. At the same time, because of the City Council's refusal to increase the voltage on the old brackets, as has been successfully done in most of the colleges, small pedestrian alleyways are being floodlit like the 'imitation motorways' of which Ian Nairn gave warning in 'Counter-Attack.' These lamp posts would be ideal in a small housing estate—and that is not a denigration of them.

Public reaction in Cambridge has been equally hostile to these new lamps. One sort of opposition has resulted in the Trinity Lane brackets in Bursar's Antique. The other sort, those people who want to see decisive modern design in keeping with Cambridge, are at least succeeding in architecture, with Denys Lasdun designs for Fitzwilliam House and the Cavendish Site. But in street furniture the same prejudices which have ruined Cambridge architecture for fifty years seem still to be rampant.

The beauty or ugliness of the lamps







themselves is only of secondary importance. Most of the 1823 designs are unbeautiful when taken out of their context. It is the context which is all-important. The real fault of these recent designs is not that one is 'Georgian' and the other is 'moderne,' but that, unlike the 1823 designs, they only give lighting. By day they do nothing but stand in the way. The contrasts of scale, the connection of different shapes and different spaces, of monumental and intimate, of court and cottage—these are totally ignored.

One of the most dangerous popular ideas of subtopia is that it is the design of the lamp post itself, in isolation, that matters. Thus, at Cambridge, instead of 26 variations in design and a different siting policy for each street, we have a uniform design and uniform siting. The flexibility of a creative mind, and the vision of a dynamic society, variations within a greater unity—these are missing; the standard type is supreme.

Two things could be remedied almost immediately. It is intended to floodlight the centre of Cambridge to the uttermost yard. Meanwhile in Romsey Town, the Victorian semi-slum where a large proportion of Cambridge people live, cut off from the rest of the town by the railway and thus unnoticed by the tourist or by royalty, the lighting is atrocious. In some streets the best light is given by pubs. St. Philip's Road and Suez Road and Ross Street may not be 'important' areas of Cambridge from the point of view of prestige, but ordinary people live there in high density housing, and need street lights. At the present rate, they will have to wait some years, unless the unlikely happens at the council elections.

Secondly, and unbelievably, the City of Cambridge, although just applying for County Borough status, has no city architect. Mr. T. V. Burrows, the city surveyor, an engineer by training, has in his charge not only the city's work in those two departments, but also its architectural policy.

Vicholas Taylor David Watkin

COUNTER-ATTACK

ALBION HILL, BRIGHTON

Brighton's post-war development has taken an extremely long time to get under way. The familiar picture of vast slum clearance sites and piecemeal rebuilding is perhaps even more marked here than in other towns of similar size. Decisions are made, then revoked; fresh schemes are prepared only to be submitted to endless committee wrangling; while the sites, mainly just behind the main shopping and business streets of the town, gather rubbish, and people wonder whether anything will ever be done.

However, the first really big scale piece of redevelopment, the Albion Hill scheme, is now well advanced. The site is a remarkable one; it rises steeply from the Valley Gardens and St. Peter's Church to a height of nearly 150 feet, with extensive views over the town, 1. Clearly it presents a



unique challenge to do something different; to accentuate the character of the site in the layout of the buildings. After all, steeply sloping land of this kind should give far more opportunity for visual drama and excitement than a flat site. But this opportunity has, so far, been missed; perhaps not even recognized.

The general view of the scheme, 2, shows how the layout makes the land look much flatter than it really is. Of course, there are good reasons why two- and three-storey buildings should be sited on the lower slopes and twelve-storey flats on the higher, and steeper, parts. But the planning has a rigid rectangularity, and there is no attempt to make interesting use of the contours. Such faults would, perhaps, be less noticeable if the design of the tall blocks were really first-class. But although they have certain pleasant details, such as the unobtrusive glass lift-motor enclosures and the crisp balcony panels, the general effect, particularly when viewed from below, as in 2, is graceless and heavy. Borough Surveyors' architecture is usually either gimmicky, cliché-ridden, pseudocontemporary or, as here, just plain stodge. Buildings of this size are bound to dominate



a large area of the town, and the greatest consideration should have been given to their architectural character.

The view of Trafalgar Street on the other side of the valley, with the Albion Hill flats



towering in the background, 3, makes a pointed contrast. This street, even in an unusually quiet moment, as in this picture, has liveliness and a personality all its own; a diminutive square adjoining it, 4, is the



essence of domestic charm. Is it wishful thinking to imagine that a genuine hill town in miniature could have been designed for this site, instead of a mere collection of packages?

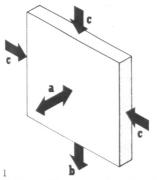
However, most of Brighton's derelict areas, some very close to Albion Hill, have still to be tackled. Sir Hugh Casson's appointment as consultant proves that the Brighton council are prepared to show concern about the form future developments will take; and one only hopes that his influence will spread beyond the specific limits of his brief.

Geoffrey Newman

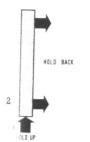
## SKILALA

#### HEAVY CLADDING PANELS, 2

R. Michael Rostron completes his account of heavy cladding panels by considering fixing, taking in turn panels fixed to a structural frame, panels applied to a masonry backing and panels used as permanent shut-



forces acting on the panel: a, wind load; dead weight; c, forces due to relative month, 2, principle of 'support and restrain.



The method of attachment of heavy receives the panels is governed principally by the type of structure which receives the panels. Three basic fixing methods are apparent:

1. As an applied facing to a structural or non-structural frame with panel fixing

with panel fixing
(a) at top and bottom

(b) at sides(c) on all edges.

2. As an applied facing to a solid continuous backing.

3. As permanent, shuttering to an

in-situ east backing.

The first and last methods are probably the quickest and most economical, but against this is the fact that the first method usually calls for a separate inner skin or back-up wall. On the other hand it is the only method in common use which allows erection to take place from the inside without scaffolding.

#### Fixing criteria

In all cases where the panel is applied, although actual fixing details may differ, there are important basic principles which must These are concerned with security, watertightness and erection:

1. Every panel is subjected to forces due to its own weight, to wind load and to movement of adjacent elements, 1. It is important to note that the self weight of the panel and the wind load act in different planes, and in order to oppose these forces the panel must be secured in two directions—it must be held up or supported and held back or restrained, 2. Sometimes both these functions can be performed by the same fixing can be performed by the same fixing device, but it is more usual to make separate provision for supporting and

restraining the panel.

2. As 1 shows, the panel is subjected to forces perpendicular to its edges due to relative movement of panel and adjacent panels or structural elements. Such movement may be caused by thermal or moisture changes in the panels or by settle-ment or loading of the structure and, although its effects can be minimized by careful design, move-

ment and the forces it sets up in the panel can never be eliminated. It is easy to be misled into thinking that the effects of very small dimensional changes are equally small. An increase in length of, say, 1/100 in. in 20 ft. may appear negligible and yet, if the expansion is not allowed to take place longitudinally, a bowing of one inch is produced—sufficient to pull panels away from supporting cramps or corbels and cause the potential collapse of the facility. To avoid this, all joints facing. and supports must be flexible enough to allow some degree of movement in individual panels without producing

cumulative stresses in the facing.
3. In all cases where the panel facing is intended to form a weatherproof skin, the principles of water exclusion followed in light cladding should be used. Briefly, this means making the panel facing as watertight as possible by attention to choice of materials and care in joint design and, at the same time realizing that a small amount of water penetration is inevitable and making provision for its removal. It is usual to allow for this removal by means of a cavity behind the panel with drainage holes or slot at its foot. Care should be taken by means of flashings to direct penetrating and condensed water towards the outside, and upstands should be used to prevent wind-blown rain entering the cavity through the

drainage outlets.

4. However accurately panels are made and structure erected, the dimensional accuracy of shop work will always exceed that of site work. Much research is required on the provision and magnitude of adequate clearances and tolerances in building components before the position is clarified, but dimensional variations will probably never be eliminated. All methods of attachment of panel to structure must therefore be adjustable in three dimensions to allow for these variations and to ensure correct alignment of panel faces and edges. Generally, attachment devices designed to allow for movement after erection will allow for adjustment during erection, but there may be instances where this is not so.

#### Fixing to a structural frame

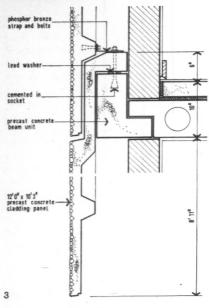
The logic of attaching cladding panels to structural elements, thereby avoiding the need for a secondary supporting system, is unassailable. It is also the most satisfactory method in practice and probably the most economical. Its most serious limitation is that the distance between columns or beams is usually large and therefore panels large in length or width are required. Furthermore, since points of attachment normally occur only at the ends of the panel, panels must be self-supporting between these points. For these reasons panels fixed between structural elements are in most cases of precast concrete, stone being unable to accept the stresses involved, even if the obstacle of size can be overcome.

A further advantage of precast

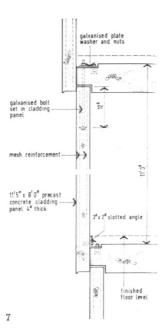
panels is that projecting nibs can be cast on their backs to transfer the load of the panel to the frame (support). Simple metal accessories may then be used to hold the panel back (restrain). The Hide Place Development, Westminster, designed by Stillman and Eastwick-Field, ontains an excellent example of this common method of fixing, 3, 4. The holes in the projecting nib through which the fixing bolts pass, are slotted to achieve some degree of lateral tolerance, whilst vertical adjustment is secured by means of lead washers inserted between the

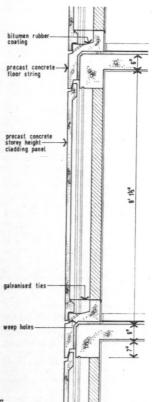
nib and the beam. Metal fixing accessories used in the Hide Place flats are phosphor bronze (for straps and bolts) and lead (for bedding washers). Because corrosion of inaccessible fixing acces-sories would be disastrous, it is of supreme importance that they shall be incorrodible. Bronze, brass and copper are most frequently used, although stainless steel is an attractive, if expensive, alternative. Galvanized and 'rustproofed' accessories are not recommended, and the London Building Act in fact stipulates

#### SHILL

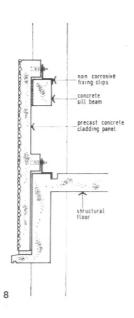












3, detail section of flate at Hide Place, Westminster (architects, Stillman and Eastwick-Field).
4, lifting a cladding slab into position at the Hide Place flats.
5, detail section of LCC flats at Roehampton Lane.

8, slabs being lifted by crane and guided into position by one man at the LCC Roehampton Lane scheme, 7, detail section of Fifty-Fifty building, Miami, Florida (architects, Robert Law Weed and Associates). 8, attachment of spandrel panel using sill beam.

that fixing accessories shall be of 'stainless steel or non-ferrous metal (other than aluminium or zinc). (Cl. 3.21 (2).)

(Cl. 3.21 (2).)

The method of fixing shown in 3 follows the principle of tile hanging, the lower panels being fixed first. Joints are not pointed and the horizontal joint at the foot of each panel acts as a drainage slot for penetrating and condensed water. The 'lap' of the panels prevents penetration of wind-blown rain and should not be less than 8 in. The large (12 ft. by 10 ft. 3 in.) panels are hoisted into position by tower crane hoisted into position by tower crane and all fixing is carried out from

Although the fixing principle is

similar, 5 shows an interesting alternative method of attachment. alternative method of attachment. Here the panels are hooked under precast strings spanning between columns at the top, whilst their lower edges rest against and are tied back to similar string units. We pholes in the strings allow for the dispersal of water. As in the previous example, the fixing operation is extremely simple, the panels being lifted by crane and manoeuvred in oposition by one man without the position by one man without the necessity for external scaffolding, is

Provided the principle of 'support and restrain' is followed, the actual method of fixing is capable of wile variation. In 7, for example, the

[continued on page 4.9

continued from page 428]

panel is suspended from the floor projection at high level and tied back to the floor at its foot. Similarly, the insertion of a sill beam enables the 'hook-on' principle to be used for spandrel panels not spanning the full storey height, 8.

Horizontal panels attached to columns present slightly different problems. The panel in such cases acts as a beam and each panel must be independently attached to and supported by the columns in order to woid cumulative build-up of stresses n the wall. The large profiled panels used in the Pressed Steel Company's Factory at Swindon, 9, are supported by nibs cast on the precast tructural columns, whilst at the amden School for Girls, 10, support and restraint are combined into a single attachment device: a metal dange fixed to each end of the panel or making a bolted connection to the column. Perhaps the simplest device of this nature is the concrete peg fixing used in the Intergrid system, 11.

If a secondary, non-structural supporting grid is introduced, far greater flexibility in panel size and design is possible, at the cost, how-ever, of economy. The most obvious type of secondary supporting grid is the sheath wall (curtain wall) usually associated with light cladding, usually associated with light cladding, but, provided the framing system is strong enough, there is no reason why heavy panels of stone or concrete should not be fixed in the same way as light panels. Castrol House's white Sicilian marble panels are fixed to the aluminium framing with simple rectangular backs. simple rectangular beads, 12. Apart from its flexibility, this method (which is extensively used in America for attaching heavy panels) ensures that all panel movements are contained within a small area and excessive stress build-up is therefore impossible. It is also one of the few fixing methods which allows stone panels to be fixed to a frame rather than to a wall.

#### Panels used as applied finish

The technique of using natural or precast panels as an applied facing to brickwork, blockwork or in-situ concrete may almost be regarded as traditional, but the principles already outlined still apply. Its main advantage is the opportunity to use panels of small surface area and because of this it is the commonest method of fixing natural stone panels.

Support is given to the panels in one of four ways, 13:

(a) on structural projections, such

as floor slabs or beams,

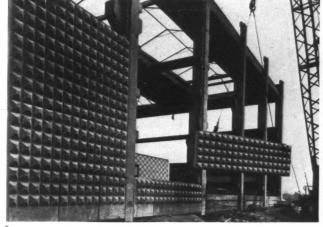
(b) by nibs projecting from the back of the panels,

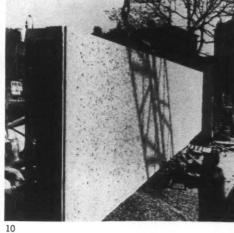
(c) by thicker corbel panels built into the backing wall,

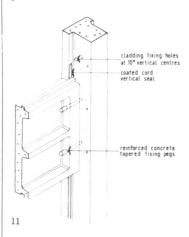
(d) by metal or slate corbels projecting from the backing wall and fitting into slots in the back of the

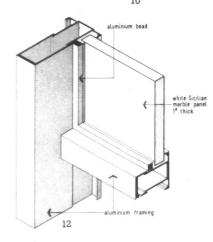
It is not usually necessary for direct support to be given to every panel course. Provided each panel is dequately restrained, supporting ourses every six to eight feet are all that is required, intermediate courses aring directly on the course below.

The metal accessories which comete the fixing of applied panels we two important functions. They strain or hold back the individual Jonels and they align adjacent panels to provide a visually plane surface and to ensure that no eccentric louds are transferred to lower panels. already explained, accessories neust be incorrodible, bronze, brass, copper and stainless steel being

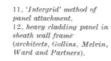


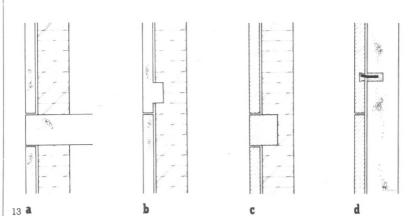




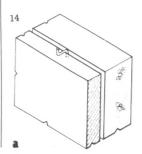


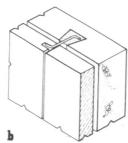
9, swinging a profiled wall panel into position at the Pressed Steel Company's factory at Swindon.
10, facing panels at the
Camden School for Girls
showing steel flange for makina a holted connection

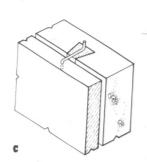




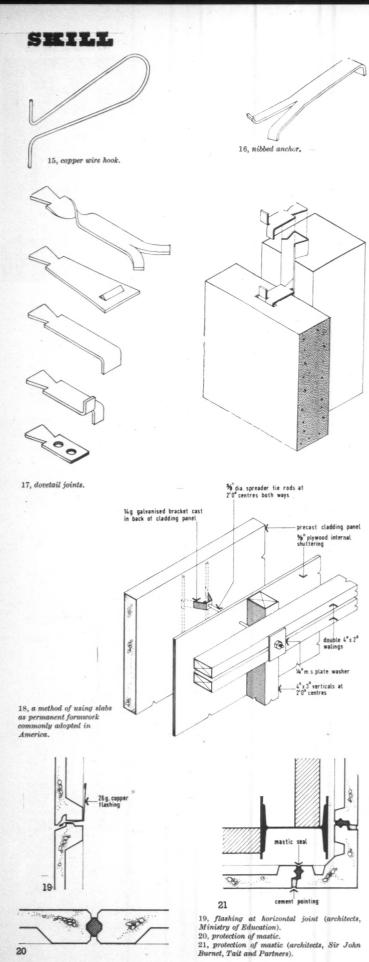
13. supporting the applied panel: a, on the structure; b, by cast nibs; c, on corbel courses; d, on metal or slate corbels. Restraining accessories are







14, a, S-hook; b, side cramp; c, top cramp.



usual. Rigid metal accessories should never be cast into the back of the panel, as they will certainly be damaged during handling with possible spalling of the concrete.

The commonest traditional accessories are side and top cramps for restraint and S-hooks for alignment, 14. It is usual for all holes in panels to be cut or drilled before delivery to the site and cramps are fixed into dovetailed mortice holes cut in the backing wall with a 1:1 cement mortar.

The need for security in fixings to the backing wall cannot be overemphasized, as upon these fixings depends the stability of the entire facing. Accurately cut dovetailed holes are essential and proper pointing of the accessories calls for workmanship of a high order. Copper wire hooks, 15, are frequently used to provide both restraint and alignment when fixing to brickwork and, although the hooks themselves are dovetailed, they are intended primarily for inserting into nondovetailed joints in the wall. Inexpert fitting of these hooks may cause most of the pointing mortar to be pushed away as they are inserted into the joint, and unless the joint is repointed after pushing the hooks home, a secure fixing will not be made. In every case hooks of this type should have at least a 4 in.
seating in the wall. Nibbed anchors, 16, are much to be preferred.

The cramps and hooks described provide only for relatively small adjustment within the mortices of the backing wall. Provided these mortices are accurately cut and positioned, this need not be a disadvantage. When the backing wall is of brickwork there is, indeed, no other way in which greater adjustment can be attained. If, on the other hand, the backing wall is of concrete, dovetailed metal slots cast in the wall, together with a variety of sliding dovetailed anchors, 17, are able to provide, in one direction at least, a high degree of flexibility.

It is usual practice in this country to leave a cavity about ½ in. wide between the facing panels and the backing wall so that cramps and anchors can be adjusted to ensure a plane and plumb wall. Continental practice favours grouting up this cavity with weak concrete, but experience has shown that it is not always possible to prevent the formation of air pockets which collect moisture and stain both interior and exterior surfaces of the wall. An unfilled cavity also allows the dispersal by gravity or evaporation of any water penetrating the joints between panels.

#### Panels used as permanent shuttering

Panels used as permanent formwork to an in-situ wall are a special case. Strictly speaking, it is doubtful whether they are cladding panels at all, since the aim is to achieve a homogeneous structural wall. However, their manufacture and appearance are similar to those of applied panels and a few notes have therefore been included.

The usual method of ensuring an adequate bond to the east backing is to leave metal loops, wires or hooks projecting from the back of the panel which in addition should have a rough or grooved surface. The metal projections are either simply left protruding into the in-situ wall or are fixed around its main reinforcement. If the aim of homogeneity is by these means achieved, there should be no problems of differential movement.

It should be remembered that panels used as permanent formwork are subject during erection to far greater lateral stresses than panels used in other ways. J. Gilchrist Wilson, in his extremely valuable booklet Concrete Facing Slabs, has pointed out that 'the pressure exerted by concrete compacted by vibration is equivalent to the hydrostatic pressure of a liquid weighing in the region of 150 lb. per cu. ft. and if adequate support is not provided, particularly at the centres of the slabs, they may be broken or forced out of line.' He describes in detail a system of erection extensively used in America by which external support for the panels during erection may be omitted and formwork costs consequently reduced. Straps projecting from the backs of the panels are connected to adjustable tie bolts at 2 ft. centres which are braced against the internal shuttering, 18. By this means, no external formwork is required, the panels are fully restrained during placing of the concrete, and all construction can be carried out from inside the

building.

It is important that the exposed surface of the panels should not become stained during the placing of the concrete backing, either by careless placing or by leakage through the joints between panels of the fine material used in the in-situ backing. Apart from care in placing, this usually means sealing the joint before casting the concrete backing by buttering up on the inside with mortar, or by using a joint sealing strip of yarn, paper or felt.

#### Tointing

The detailing of joints is one of the occupational hazards of architecture; it is a most complex subject and the pitfalls are many. In an earlier article\* I dealt rather more fully with jointing problems than space here permits, and the following notes are intended mainly as a supplement to my earlier observations.

to my earlier observations. All joints must be flexible enough to allow for movement in components and also exclude moisture. The amount of movement and therefore the size of joint is directly related to the surface area of panel, and small panels, such as those of natural stone applied traditionally to a continuous backing, will require only a relatively small joint. In such cases a  $\frac{1}{8}$  in. joint pointed with a 1 cement:  $2\frac{1}{2}$  lime:  $3\frac{1}{8}$  stone dust mortar has been found satisfactory.

satisfactory.

Larger panels require a joint normally too wide to be pointed with such an inelastic material. The advantages of a dry horizontal joint, 3, have been described. Care should be taken to exclude wind-blown rain and to evacuate moisture by means

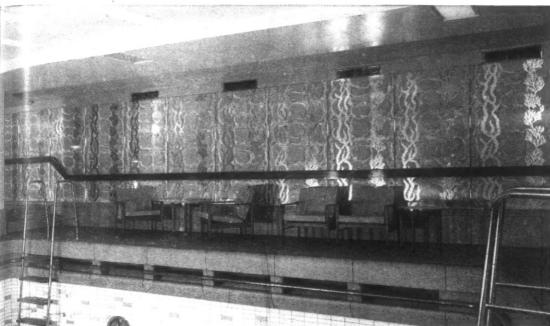
and to evacuate moisture by means of flashings, 19.

If oil-based mastic is used as a sealant, it should be remembered that it has a limited life and resealing may well become necessary during the life of the building. Its life will be extended by reducing the area exposed to sunlight and weather, 20, or by pointing with a weak (1 cement: 3 lime: 12 sand) mortar, 21. At the same time, sufficient mastic should be used to enable the joint to function properly. The ability to accept constant deformation can only be guaranteed by providing sufficient depth—\(\frac{3}{8}\) in. below the surface skin should be regarded as a minimum and to compensate for the shortcomings of workmanship it may be to increase this to \(\frac{1}{2}\) in. The [continued on page 43]

"The Joint, 'Architects' Journal, 28 April 1960.

# Edusive

IN THE EMPRESS OF CANADA' WARERITE DECORATIVE LAMINATES



he Coral Pool. Design Consultant for WARERITE mural—Paul Gell. Architect—J. Patrick McBride

Lovely swim! And the warefite Murals help to create the exotic atmosphere. Coiffure madame? warefite surfaces set a fashion-conscious theme in the beauty parlour. Meanwhile, the children play in the nurseries, and pictures incorporated in warefite help to keep them amused. warefite decorative laminates are used, exclusively, throughout the Empress of Canada—in cabins, shops, lifts, bathrooms, passageways, on doors and tables. warefite brings colour, cleanliness and durability. Wonderful for passengers, wonderful for the crew and wonderful for the owners.

Wonderful too for designers and architects who require exclusive designs in warefite. Why not ask one of our technical representatives to call, or you can see us at the Interplas Exhibition, Stand No. C38.

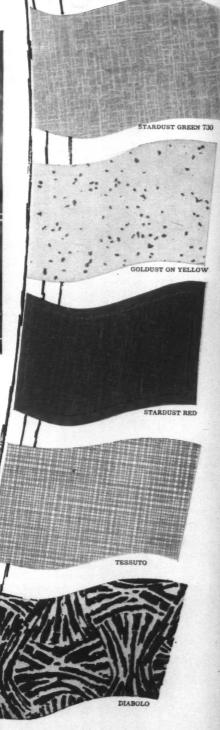
# WARERITE is wonderful!

\* WARERITE decorative laminates with the super-hard melamine surfaces are products of BAKELITE LTD

12-18 GROSVENOR GARDENS · LONDON SW1

THE NAME WARERITE AND THE TREFOIL SYMBOL ARE REGISTERED TRADE MARKS OF BAKELITE LIMITED.

TGA W254



These flags represent some of the many

standard WARERITE patterns available.



#### **EXECUTIVE...**

A new range of commercial lighting fittings, pendant and ceiling type, offering a wide choice of glasses, reflectors, skirts and suspensions, based on a quite small number of standard components.

This is **EXECUTIVE** lighting, elegant, versatile and easy

to maintain. Particularly suitable for offices, shops and stores, schools and public buildings.



New simple 'TURN and LOWER' action for easiest ever installation and maintenance.

G.E.C's new positive bayonet fixing with 'turn and lower' action means EXECUTIVE glasses can be fixed or removed in an instant, saving time and money on maintenance and lamp replacement. (Patent applied for).



EXECUTIVE suspensions in ten different lengths are either ½ in. silver anodised aluminium tube or this new steel reinforced white flexible. (Patent applied for).



Internal locking screw on lampholder prevents unscrewing when relamping.

## ECUTIVE



LIGHTING & HEATING GROUP, THE GENERAL ELECTRIC CO. LTD., MAGNET HOUSE, KINGSWAY, LONDON, W.C.2

## Does anyone make Ceramic Tiles in British Standard Colours?



## RICHARDS DUROSILK SERIES

has been selected and tabulated to accord with B.S. 2660.
(Colours for Building and Decorative Paints),
the appropriate B.S. serial number being shewn in each case.

This range of colours was developed in co-operation with

#### THE BUILDING RESEARCH STATION

(whose help we gratefully acknowledge) and, we are happy to say
THE ENTIRE RANGE HAS BEEN ACCEPTED BY THE
COUNCIL OF INDUSTRIAL DESIGN
for inclusion in

#### **DESIGN INDEX**

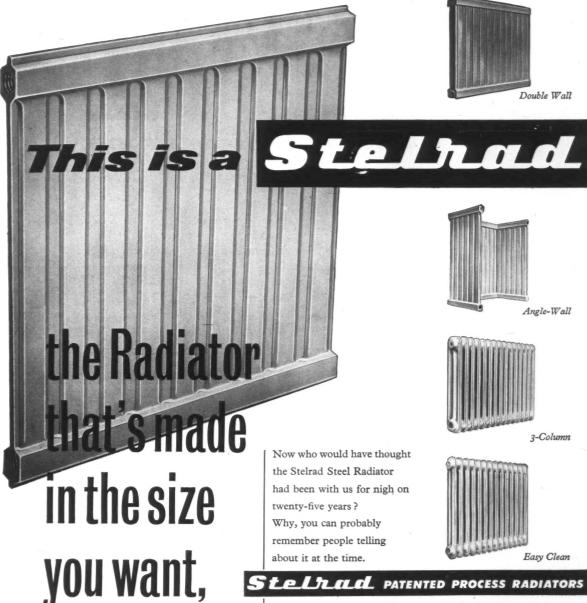
We should welcome your enquiries-please ask for Folder C.101

RICHARDS TILES LTD., STOKE-ON-TRENT, ENGLAND

and in the

shape your

client likes



#### TPLICAL PATENTED PROCESS RADIATORS

Some were doubters, holding forth about steel and how the only Radiator to use was one that was not only heavy to handle but ungainly to behold. But where is the Stelrad today? In buildings large and small throughout the length and breadth of the land, and in a range so wide there is not a single nook a Stelrad cannot heat.





RADIATORS LIMITED

BRIDGE ROAD, SOUTHALL, MIDDLESEX . Telephone: SOUthall 2603

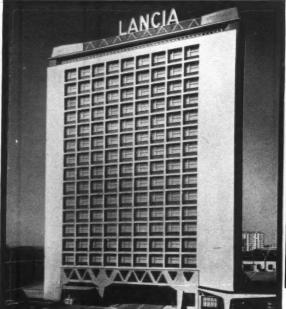


The British Thomson-Houston Co. Ltd., Larne Factory, Northern Ireland.



#### 67 COUNTRIES AGREE

Whatever the world situation, at least the architects in sixtyseven countries are agreed about one thing-the excellence of Luxaflex Venetian Blinds. Throughout Europe, Africa, Asia and America, more than 20,000 Luxaflex Venetian blinds are installed every day in factories, offices, government buildings, department stores, schools, hospitals, universities and private homes. The architects who specify Luxaflex Venetian Blinds appreciate the fine workmanship in their robust construction and trouble-free performance. People who live or work with them appreciate their many practical advantages.



The Lancia Building, Turin, Italy.



Neubert Furnishing Store, Würzburg, W. Germany.





stry of Agriculture, Brussels, Belgiur

POINTS TO PLEASE ARCHITECTS

In winter they keep draughts out and

makes better use of artificial light.

Luxaflex cut ventilating and heating costs Luxaflex Venetian Blinds give protection in summer from the sun's glare, keep buildings cool and airy.

Luxaflex Venetian Blinds make the most of

natural light. They direct light rays from their natural downward path and reflect them evenly into all parts of the room. By reflection, Luxaflex

AND THEIR CLIENTS:

warmth in by insulation. Luxaflex cut lighting costs

Luxaflex are easy-to-clean, cut maintenance costs Luxaflex Venetian Blinds maintain good air circulation and their hygienic slats and tapes eliminate the risks of infection. That's why they're used extensively in hospitals, canteens, etc.



THE WORLD'S FINEST VENETIAN BLIND

For further information and literature write or phone:



... the Silvertip range of switchfuses and splitters has been designed especially for Single Pole and Neutral A.C. circuits.

Supplied with either pressed steel cases finished in grey enamel as illustrated, or with Bakelite moulded covers, this range complies generally with BS.861, BS.816, and BS.2510 and is fully described in our leaflet. May we send you one?

#### REVO ELECTRIC

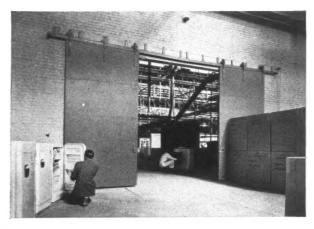
REVO ELECTRIC CO. LTD., TIPTON, STAFFORDSHIRE

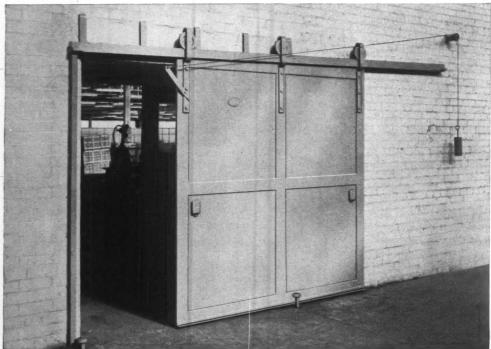
A Duport Company famous for cookers, fires, fluorescent and industrial light fittings, power tools, street lighting, switch and fusegear etc.

Haywards Steel Doors for party wall openings are fully fire resisting and manufactured to London County Council and Fire Offices Committee specifications.

A variety of types is available: pivoted, hinged and sliding: self-closing; single and double leaf. Special air-tight doors are also available, and fire resisting doors for situations not requiring maximum protection.

#### Fire-proof Steel Doors





Haywards Sliding Fireresisting Steel Doors installed at the Swansea Works of the Pressed Steel Company Ltd. (Photos: Courtesy of Pressed Steel Company Ltd.)

Architects:

HARRY W. WEEDON F.R.I.B.A. & PARTNERS

ontractors:

SIR ROBERT MCALPINE & SONS (South Wales) LTD.

## HAYWARDS LTD

HAYWARDS LTD · UNION STREET · LONDON SE1

 $\textit{Branches} : \texttt{Birmingham} \cdot \texttt{Bristol} \cdot \texttt{Cardiff} \cdot \texttt{Jersey} \cdot \texttt{Dublin} \cdot \texttt{Leeds} \cdot \texttt{Manchester} \cdot \texttt{Newcastle-on-Tyne}$ 



## ONE SWALLOW \_\_ DOESN'T MAKE A SUMMER....

. . . . One swallow doesn't make a summer—though mind you, it might make things look rosy for an hour or two.

Of course, if you go the right way about it, you can have the brightness of summer and the freshness of spring around you all the year through.

Impossible you say?—not a bit. Have you seen a house or factory colour planned and painted by the Indestructible Paint Company?

I.P. have a wide range of colours to suit all uses and tastes, and if you can't think of a suitable colour scheme then the I.P. colour consultant will help you.

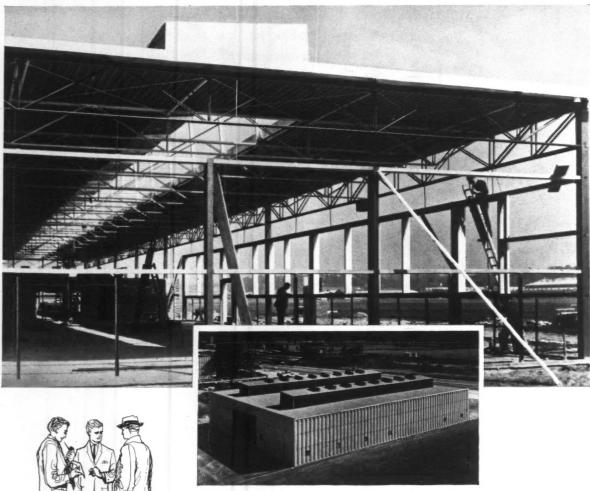
A handsomely bound FREE copy of the eighth edition of SURFACE PROTECTION AND DECORATION containing 84 paint specifications is available for principals.



INDESTRUCTIBLE PAINT CO. LTD.
6 CHESTERFIELD GARDENS, CURZON STREET LONDON, W.1

PHONE: GROsvenor 8971

## **ARCON MONITOR ROOF**



## THE OWNER THE ARCHITECT THE BUILDER

#### ALL AGREE ..

#### MODULAR PLANNING - STANDARDISED COMPONENTS

The 'ARCON' MONITOR ROOF BUILDING combines the advantages of modular planning with the use of standardised components to form a very economical method of construction for flat-roofed buildings. Roof lighting by means of monitor frames can run either across or with the length of the building, and either singly or in banks as required. A very wide variety of walling systems is possible. Full specification brochure gladly sent on request.



### SIMPLIFIES BUILDING

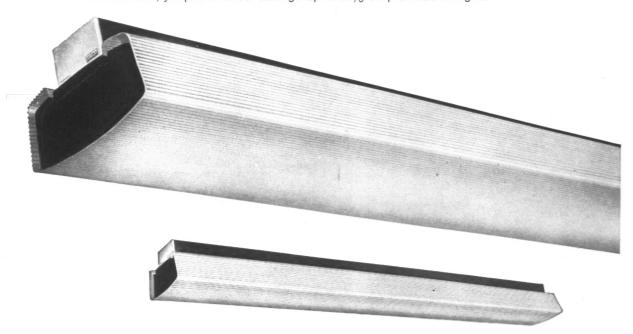
TAYLOR WOODROW (ARCON) LIMITED
41 WELBECK STREET · W1 · TEL: HUN 6666



The sponsor companies forming the Arcon Group are: IMPERIAL CHEMICAL INDUSTRIES LTD · STEWARTS AND LLOYDS LTD THE UNITED STEEL COMPANIES LTD · THE CRITTALL MANUFACTURING CO. LTD · TAYLOR WOODROW (ARCON) LTD

## A magnificent range of fluorescent fittings with many new features in design, finish and ease of installation

Atlantic 2 is a new range of fluorescent lighting fittings with many advantages over all others yet conceived. Using one basic spine, plus a minimum of attachments, a wide variety of fittings can be created to meet the precise lighting needs of almost any industrial, commercial or municipal installation. Appearance is superb, efficiency outstanding, finish immaculate; yet prices show savings up to 25% on previous designs.



The AAB series diffusers illustrated, accommodating 1 or 2 x 80w. tubes, present economic, but very attractive, commercial lighting fittings. Extruded with a bold reeded pattern on the outside, the opal 'Diakon' diffuser has clip-in plastic moulded end plates in blue or white and is easy to clean. Price with QS gear for the twin version is £17.2.5 tax paid.

Incorporated in the spine are many features which will reduce installation and maintenance costs. These include: new, spring loaded lampholder, starter switches replaceable without dismantling, welded screw studs, single component spine, pre-wired, automatic continuous run alignment; drip and dust proof, closed back; 'Miracryl' finish; and others illustrated.



Improved lampholders, need no fixing, no

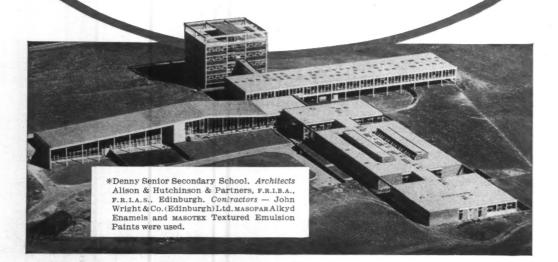
Fast, positive fixing of attachments



ATLAS LIGHTING LIMITED . THORN HOUSE . UPPER ST. MARTIN'S LANE . LONDON WC2

Take .

"Masotex Textured Emulsion gave the finishing touches to Benny Secondary Senior School"



## joseph mason paints

Have you had your copies of our two helpful books for architects— Joseph Mason Painting Specifications' and 'Architects' Special Colour Range?''

JOSEPH MASON & COMPANY LIMITED, DERBY, TELEPHONE: 40691-2-3

Depots: London, Preston & Kirkcaldy, Scotland

Manufacturers of very good paints since 1800



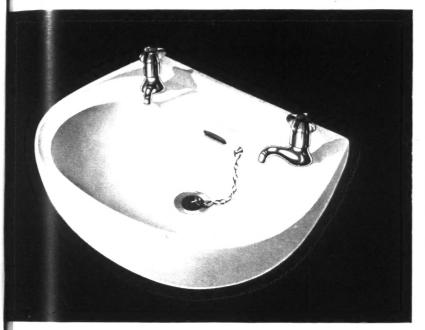
R/ FI

# Gannox

RANGE OF SANITARY FIXTURES FOR SCHOOLS

IN VITREOUS CHINA

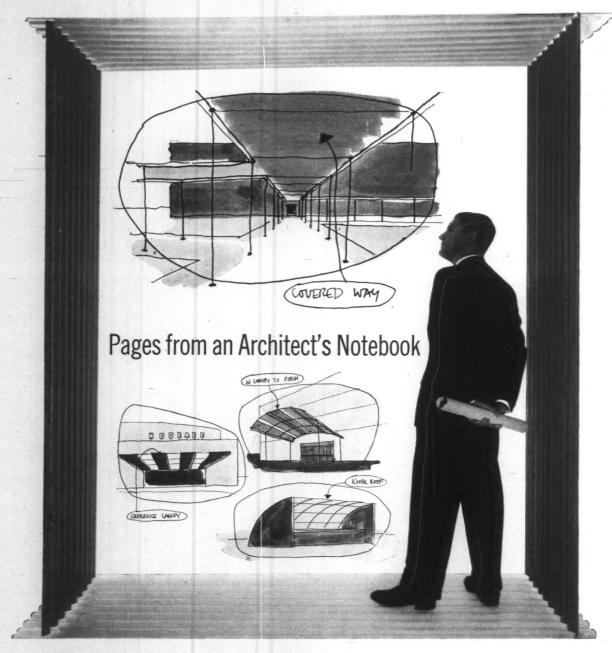








Shanks



#### 1 Shelter out-of-doors

When a structure must provide light as well as shelter, FILON is today's material. Strong, lightweight, resilient, shatterproof, it transmits up to 85% of light. Available in all standard profiles to match corrugated iron, aluminium and asbestos; also special decorative profiles and flat sheeting. Good range of General Purpose

and Self Extinguishing grades and colours. Easily and cheaply erected on the lightest of supports, doesn't warp or corrode in any weather—and you can forget about maintenance.

FILON is approved by the Admiralty, Air Ministry, War Office, L.C.C., J.F.R.O.

FILON

strong

translucent

STRUCTURAL SHEETING

B.I.P. REINFORCED PRODUCTS LIMITED Streetly Works · Sutton Coldfield · Tel: Streetly 2411

#### University College of North Staffordshire

#### choose Ceramic Tiles ...

...for bright wall surfaces in the Students' Dining Room Kitchen, Horwood Hall — a recent addition to Wall Tiling, accentuated by gay, Keele University. screen-patterned tiles, creates an effective colour scheme.



Architect: Main Contractor:
Tiling Contractor

J A Pickavance, F.R.I.B.A., Architect & Buildings Officer. Messrs. Elsby Bros. Ltd., Burslem, Stoke-on-Trent. Messrs. E Henshall & Co Ltd., Stoke-on-Trent.

Write for an informative new Brochure-"CTF" (Thin Bed Fixative and Grout) INTRODUCING an outstanding advance in Tile-fixing technique.

Visit the Council's display of ceramic tiles at the Building Centre, Store St., Tottenham Court Rd., W.C.1 and 425/427 Sauchiehall St., Glasgow, C2.

British



British Ceramic Tile Council Federation House Stoke-on-Trent

# problem in roofing

The "Bitumetal" roof in this case was constructed to give a specific 'U' value to meet the designed internal temperature and relative humidity of the building. The vapour barrier was necessary under these conditions to prevent interstitial condensation in the thickness of the roof insulation.

At the eaves, Briggs were faced with the problem of carrying the roof specification from the sole of the gutter, up and over the projecting R.S.C. and to the outside of the vertical cladding, so as to provide continuous insulation and vapour barrier protection over the complete roof.

The Bowater Paper Corporation, Kemsley Mill, Sittingbourne, Kent.

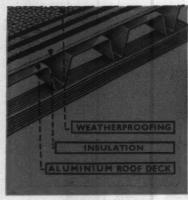
Architects: Farmer & Dark, London

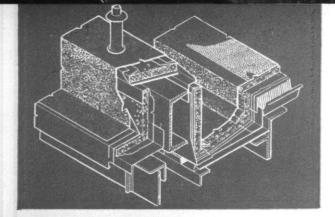




Special aluminium sections were designed and provided to enable a practical detail to be carried out affording a sealing surface for the vapour barrier and full support for the insulation.

The resources, technical knowledge and experience of the Briggs Organisation are at the disposal of every Architect and Engineer. Consult our nearest area office for further details of Briggs Technical Design Service.





BRIGGS

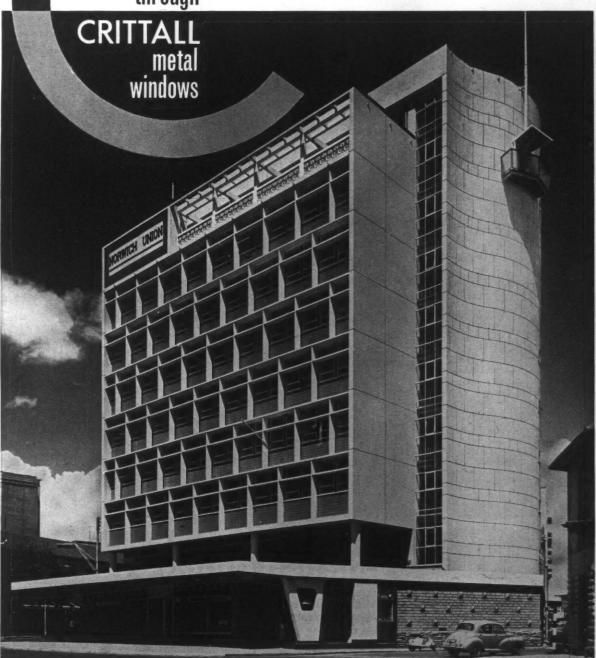
the people to see about roofing

WILLIAM BRIGGS & SONS LIMITED YAUXHALL GROVE, LONDON, S.W.8 REGD. OFFICE: DUNDEE

AREA OFFICES: ABERDEEN · BELFAST · BRADFORD · BRISTOL · CARDIFF · DUBLIN EDINBURGH · GLASGOW · LEICESTER · LIVERPOOL · NEWCASTLE · NORWICH

People all over the world look through Crittall products have in the past year been exported from the United Kingdom factories of the Company to no less than eighty-one countries throughout the world.

Norwich Union Building, Nairobi. An installation of Crittall hot-dip galvanized steel windows. Architects: Norburn, Browning and Pickering, F/A.R.I.B.A. Builders: Foale & Company Ltd., Nairobi.



Write for leaflets to: THE CRITTALL MANUFACTURING CO. LTD . BRAINTREE . ESSEX . BRANCHES AND AGENCIES IN ALL COUNTRIES
THW 144

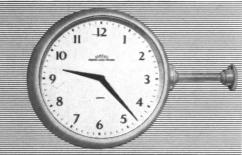
MAYFAIR/FARNHAM



## A certain style

DOUBLE SIDED







FALCON

The dead like

11 12 1 10 - 2 9 3 8 7 6 5

—a style for every setting in every type of building.

All the interior wall clocks in the wide E.C.S. Range (a selection of which are shown) have been accepted by The Council of Industrial Design for Design Index.

They are made in a number of sizes for operation from A.C. mains or from the E.C.S. Master Clock as part of a controlled time system.

For full details of the complete range write:

FULMAR



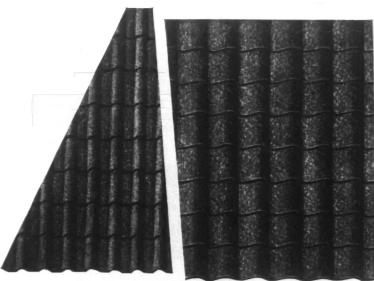
## **English Clock Systems**

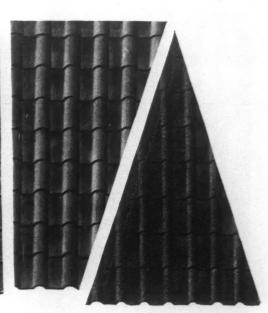
179-185 GREAT PORTLAND STREET LONDON W1 TELEPHONE LANGham 7226 Branch Offices:

BIRMINGHAM MANCHESTER LEEDS GLASGOW BELFAST

A branch of the Clock and Watch Division of







#### **COLTHURST SYMONS**



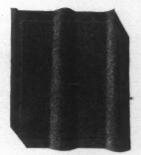
'REYNARDO' No 14



PANTILE No 6



'BAMBINO'



DOUBLE ROMAN No 9

Long famous for their fine appearance, durability and for the creative scope they offer the architect. Hand moulded from nonferrous Bridgwater clay, they are available in a variety of shapes, colours and textures. Details of the tiles illustrated and of the full Colthurst, Symons range, available on request.

COLTHURST, SYMONS & CO LTD

BRIDGWATER

SOMERSET



Lions' heads made of beaten copper over a bitumen core relics of a Sumerian Temple dated approximately 2600 B.C. Reproduced here by courtesy of the British Museum.



## coppertrinda

A sample of COPPERTRINDA Dampcourse is immediately available, on request, to

ENGERT & ROLFE LTD
Barchester Street · London · E14

## when are two heads better than one...?

Uncovered after more than 4,500 years, these two survivors bear witness to an age and culture far removed from our own.

And yet their very substance provides proof of the incredible lasting properties of copper and bitumen combined, that carries a message to the planners and builders of today.

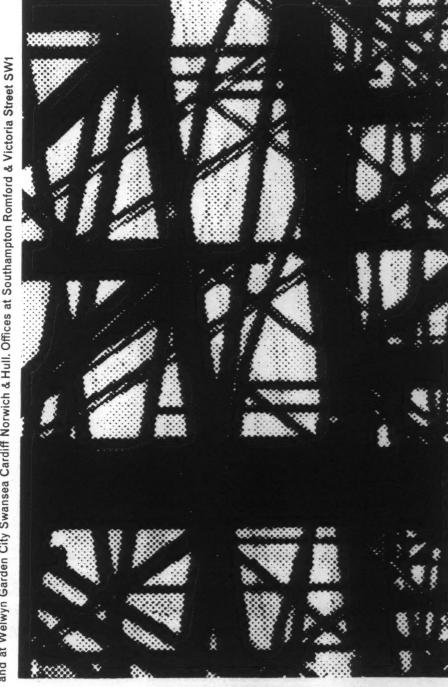
The same weathering and rust-resistant values of copper and native bitumen — now derived from Trinidad Lake Asphalt—can again be relied upon in COPPERTRINDA...the finest handmade dampcourse in the modern world.



WIII	ENGERT	Čζ	ROLLE	LTD.,	piease	supply	
a sam	ple of COI	PPER	TRINDA	Dampo	ourse to	:	
М							
(Desi	gnation)	*******	*****				
of							

A.R.12

Address ....



DAWNAYS LIMITED STEELWORKS ROAD BATTERSEA SW11 TEL: BAT 2525 and at Welwyn Garden City Swansea Cardiff Norwich & Hull. Offices at Southampton Romford & Victoria Street SW1

# DAWNAYS specialists in the design fabrication & erection of STEELWORK

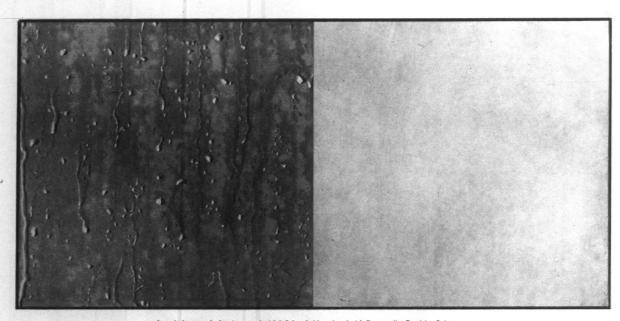
## AT LAST!

THE EFFECTIVE ANSWER TO CONDENSATION PROBLEMS

## Anticon

**FUNGICIDAL ANTI-CONDENSATION COATING** 

by the Dentolite Process (World patents applied for)



Actual photograph showing panel with left hand side painted with first quality Emulsion Paint and right hand side with ANTICON and then subjected to severe condensation conditions.

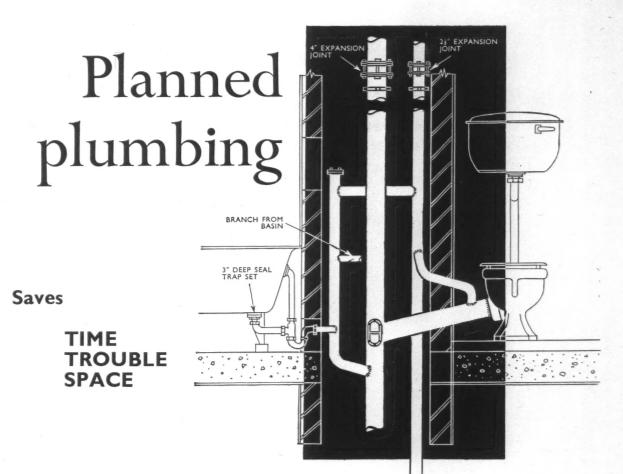
## ANTICON DEFINITELY STOPS CONDENSATION AND MOULD GROWTH EVEN UNDER SEVERE CONDITIONS

ANTICON is a remarkable new invention—a great advance on anti-condensation paints or coatings so far available. ANTICON has the following properties:

- 1 Due to its possessing unique dual properties of water absorption and thermal insulation, it definitely inhibits condensation even under "severe" conditions.
- 2 It prevents the growth of mould, although free from poisonous chemicals. It is absolutely harmless and its fungicidal efficiency is effective for many years.
- 3 It is actively anti-bacterial. Germs, disease producing or otherwise, cannot grow on ANTICON, so eliminating the risk of cross infection from its surfaces.
- 4 It is applied by brush, spray or roller and produces a smooth decorative emulsion finish.
- 5 It is available in a range of colours.

DENTON EDWARDS PAINTS LIMITED, ABBEY ROAD, BARKING, ESSEX RIPpleway 3871

Manufacturers of fine Paints for over 170 years.



Prefabricated plumbing in smooth bore copper and steel has many advantages in terms of SPEED OF INSTALLATION; ADAPTABILITY TO INDIVIDUAL DESIGN; and long, trouble-free life. Close contact in early stages between the Architect and Econa can relieve even the most stubborn plumbing headache.



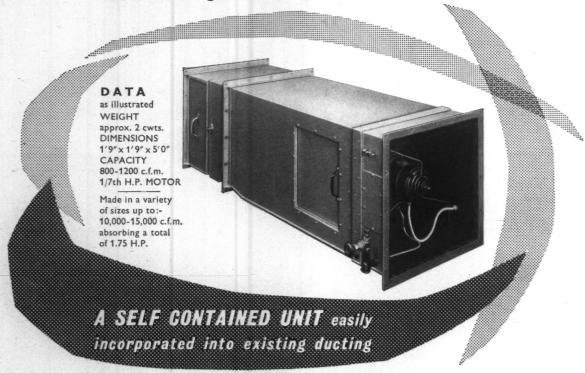
ECONA MODERN PRODUCTS LIMITED, HIGHLANDS ROAD, SHIRLEY, SOLIHULL.

Telephone: SOLihull 4981

## Mellor Bromley

#### AIR CLEANER HUMIDIFIER

for complete saturation and efficient air cleaning—with no free moisture



## COMPACT - ADAPTABLE - INEXPENSIVE TO INSTALL AND OPERATE

- Does not require pumps, water strainers or similar ancillary equipment.
- Water is taken direct from the mains at normal pressure.
- No plant house, foundations or floor space required.
- Incorporated easily into existing discharge ducting.
- Lightweight, small and compact.
- Range of sizes to meet individual requirements.
- Automatic control by either dew-point or humidistat.
- Can incorporate own fan, humidifier, air cleaner humidifier.
- Low capital and running costs.
- · Can be duplicated in branch mains for individual room control.
- No tank or dirty water load necessary-operates continually with fresh water, thus avoiding possible build-up of bacteria.
- Supplied to hospital authorities.
- Eliminates maintenance of spray nozzles, tanks etc.

Member of the Bentley Group

MELLOR BROMLEY (AIR CONDITIONING) LTD - St. Saviours Road, Leicester

Telephone: Leicester 38161. Telegrams: CONDITION LEICESTER







# aluminium suspended acoustic ceiling panels now made in this country!

Physicists of the world famous Pirelli organisation have designed an entirely new aluminium sound absorbing acoustic panel. This Pirelli Saga panel represents highest all-round efficiency in the important matter of noise control.

Pirelli Saga panels are very simple to fit, and they can be easily removed and replaced.

Pirelli Saga panels are attractively made. Standard size 2 x 2 ft. They are not at all expensive.

For full details, please write to Sole British Licensees:

#### SUPER SILENT LIMITED

8-10 Great Titchfield Street, London W.1. Telephone: Museum 1191



Williamson linoleum in the 1st Class dining saloon of the s.s. Oriana. Co-ordinating Architects: Design Research Unit. Contractors: Durastic Ltd.

## A NEW DIMENSION IN INTERIOR DESIGN WITH WONDERFUL WILLIAMSON LINOLEUM

WITH WONDERFUL Williamson linoleum, floor design takes on an entirely new dimension... the dimension of freedom. For the subtle colourings and surface patternings of Williamson linoleum give the designer all the freedom he needs to plan floors as a fully integrated part of the overall interior design conception. Williamson linoleum has many other advantages too. Its low capital

cost, ease and speed of laying, durability, minimum maintenance requirements and quality of finish, plus its warmth to the touch, its resilience and its comfort underfoot, make it the outstanding material for the widest range of flooring applications today.

Specialised knowledge and information are available from the Williamson Technical Advisory Service.



## WILLIAMSON LINOLEUM

JAS. WILLIAMSON & SON LIMITED LANCASTER FOUNDED 1844 Telephone: Lancaster 5222



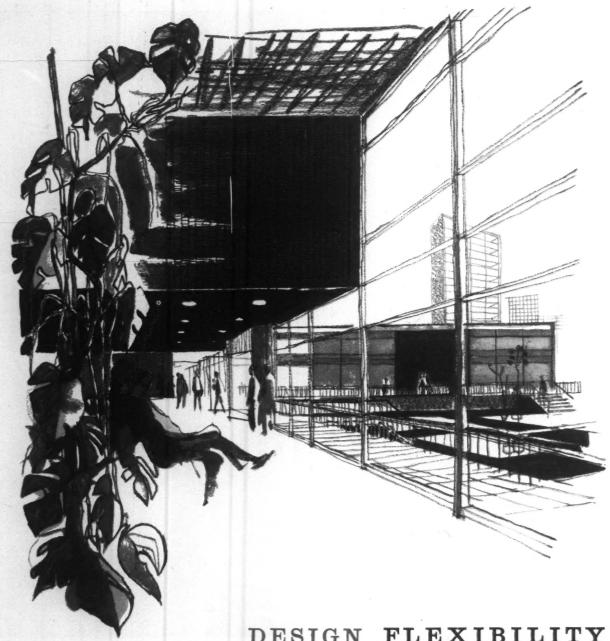
Fickle spring and summer weather won't worry you when you paint with Hadrian Rapid. This amazing paint dries fast and so cuts to the minimum the critical period when paintwork is liable to damage from rain, dust, industrial grime, fumes—and all the other 'drying time hazards.' Indoors, too, Hadrian Rapid can save you time and money by letting you complete in one day jobs which would normally require two! Just look at the advantages only Hadrian Rapid gives you.

- DRIES IN ONE HOUR—READY FOR RECOATING IN FOUR
- CUTS RISK OF PAINTWORK SPOILAGE THROUGH 'DRYING TIME HAZARDS'
- PRODUCES A HIGH GLOSS FINISH—YET IS FLEXIBLE, WON'T CHIP OR CRACK
- EXTREMELY DURABLE AND WEATHER RESISTANT
- . ALLOWS AMPLE WET EDGE TIME-EVEN ON LARGE AREAS

HADRIAN RAPID comes in a range of 50 attractive colours

For more details write or 'phone your local Smith & Walton depot, or

SMITH & WALTON LTD '(HALTWHISTLE · NORTHUMBERLAND · Haltwhistle 421



DESIGN FLEXIBILITY
In the development of DERWENT it has been our continual aim to extend to the architect greater design freedom within the limitations of a modular system. DERWENT today is without doubt the most flexible of DERWEN T all systems of construction for single and two storey work. The panel range DERWEN T is based on an absolute vertical module of 1'4" and permutations of six types of opening lights in three heights of 1'4", 2'8" and 4'0", with various infill sections, give an infinite number of unit combinations. Just as the name DERWENT is synonymous with design freedom, so is the name of its makers — Vic Hallam Ltd. — the certain guarantee of expert advice and full co-operation at every phase. Please send for Derwent folder.

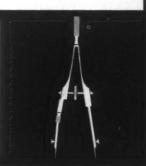
TIMBER BUILDINGS DIVISION



LTD LANGLEY MILL NOTTINGHAM

Planning down to detail...







0 0

Ġ 6



Mention MOFFAT by name to your kitchen-conscious clients. Send for full explanatory literature. Contact MOFFATS Limited at 35 Davies St., London, W.1.

## means getting round to Moffat

Engineered with professional devotion to detail, boasting feature after feature unheard of in other cookers, MOFFAT cookers are now available as Built-In Ovens and Surface Units in Satin Chrome or a wide range of colours. The Built-Ins offer all the famous MOFFAT features plus flexibility of planning and ease of installation. Build in or build around. Virtually all kitchen furniture manufacturers make kitchen units especially to accommodate MOFFAT 'Built-Ins'.

MOFFAT



## WILLIAMS & WILLIAMS PUSTPROOFED

## steel windows welcome the traveller

Light, ventilation, ease of cleaning, sound control, a happy colour scheme—whatever the requirements for today's hotels, Williams & Williams rustproofed steel windows can be specially designed to meet them.

WILLIAMS & WILLIAMS

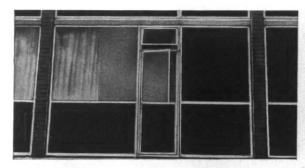
# at Europe's largest air hotel



This view of the bedroom block and escape staircase illustrates the contrasting blue and white colour scheme chosen for Skyway. The blue Plyglass infilling panels are backed by Thermalite insulation blocks. With quarter inch glass throughout the building, this effectively reduces airport noise to a minimum.

With years of experience in catering for the traveller, Skyway Hotels Ltd. had no doubt about the way they wanted to build at London Airport. A room for the night or a few hours, breakfast at mid-day, or a banquet at short notice for a party delayed by fog—these are a few of the things today's air passengers may need. And, of course, the right atmosphere must be part of the service. Williams & Williams purpose made steel windows were specified throughout this contract. Amongst

its requirements the brief called for maximum sound insulation and a creative use of exterior colour. In addition, the installation had to keep pace with an eight months building schedule. Skyway was handed over three weeks ahead of time—and has proved to be just what the traveller wanted. A new bedroom wing, commissioned soon after the hotel opened, has just been completed. Once again Williams & Williams purpose-made windows were used throughout.



For bedrooms at ground level a stall door was specially designed to give direct access to a car park outside. The clean, simple lines of the general design are preserved by installing the opening window and ventilator light in the upper half of the door.

Architects: Fitzroy Robinson & Partners. Contractors: Bernard Sunley & Sons Ltd.



In the shopping arcade, passengers can make their purchases and then enjoy a few moments peace and quiet between flights. A feature of the arcade is the glazed front set at an angle. These Williams & Williams windows were specially designed to bring in the maximum amount of light and make room for the plant trough.

WILLIAMS & WILLIAMS

## forward looking building products

Williams & Williams make RELIANCE steel windows of every description, ALOMEGA and other aluminium windows, ROFTEN movable steel partitioning, ALUMINEX patent glazing, WALLSPAN curtain walling and many other products, all of which can be seen at our permanent exhibition at 36, High Holborn, London, W.C.1.

WILLIAMS & WILLIAMS, RELIANCE WORKS, CHESTER . WILLIAMS HOUSE, 37-39 HIGH HOLBORN, W.C.1



.. new and wider scope for the designer...

FINELINE"



Wright's FINELINE developed from the American invention and now in use all over the World is the only manufactured straight grained veneer produced in Great Britain (Patent pending Number 835075). Buy FINELINE from John Wrights and share in the use of this unique product.

## JOHN WRIGHT & SONS (VENEERS) LTD

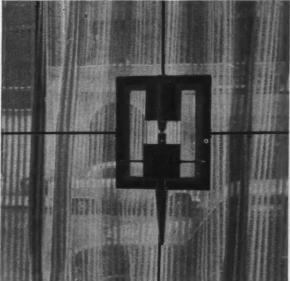
AVON WHARF LONGFELLOW ROAD MILE END ROAD LONDON E3

Tel: Advance 4444 (10 lines) Grams: 'Mottled Bochurch London'



Vetrona is the furnishing fabric without peer. For display work, for contract work and for domestic design it has unique advantages. It is stable (cannot shrink, crease or droop); it is hygienic (it cannot absorb dirt, drip-dries in minutes and never needs ironing). Because it is made of glass Vetrona literally cannot burn. And it is charming. In all its many weights and designs, Vetrona filters and reflects





light in the most attractive manner, while yet preserving privacy. Translucent, falling in rich folds, it gives space and splendour wherever it is hung. Above you can see three examples of Vetrona in displayed use; in the Thermoplastics Ltd Stand at the Ideal Home Exhibition (1960), in the Ford Motor Works Conference Room and in the Cocktail Bar of the Mayfair Hotel, London W1.

# VETRONA the fabric made of glass

Vetrona Fabrics Limited, 90 Great Bridgewater Street, Manchester 1

## CINEMAS AFLOAT



## COX & CO. (WATFORD) LTD.

WATFORD BY-PASS · WATFORD · HERTS Telephone: WATford 28541



## AMBASSADORS OF TRADE

For centuries the tales, fact and fiction, of merchant adventurers, like those of the East with their fabulous camel trains of treasure, have stirred the imagination. Equally today bold imaginative venture is essential to modern trading.

George Parnall & Co. Ltd. are contributing much in the way of store and shop design, and producing with skill and experience fine persuasive settings for the wares of the modern "merchant adventurer".

GEORGE PARNALL & CO., LTD

4 BEDFORD SQUARE LONDON W.C.I

## A SUPERB VENEER

is worth protection ...



.. that is why Gliksten Mark 12 doors are factory wrapped in stout paper and reach you in perfect condition.

Give your buildings the extra refinement of

### **GLIKSTEN MARK 12 veneer faced doors**

With carefully matched West African Cedar Veneers they are the pinnacle of door perfection.

## GLIKSTEN DOORS LTD

Carpenters Road, Stratford, London, E.15. Telephone: AMHerst 3300 87 Lord Street, Livorpool, 2. Telephone: Central 3441 112 Londesborough Street, Hull Telephone: Hull Central 28716





New types, new designs The new extended range of "Insulight"\*
Hollow Glass Blocks provides all the elements for an unlimited variety of design patterns—this "Boomerang" type is only one example—while retaining all the functional advantages.

For full details of the complete new range write to the Technical Sales and Service Department.

#### PILKINGTON BROTHERS LIMITED



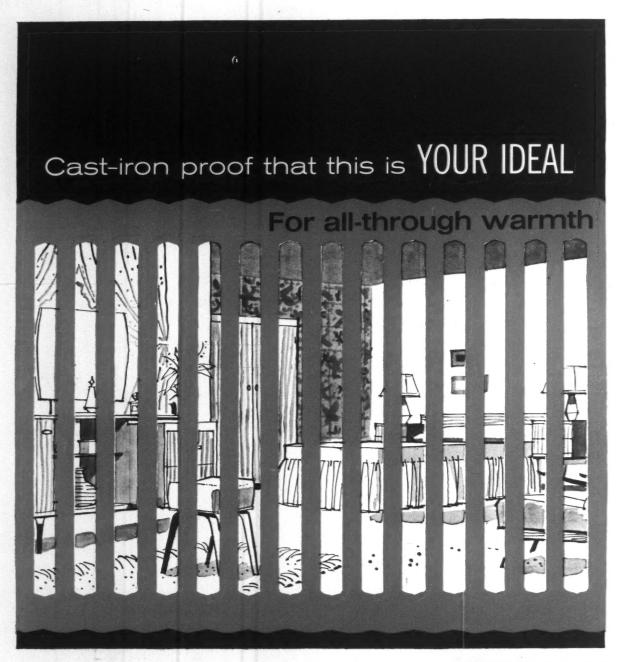
St. Helens, Lancashire. London Office: Selwyn House,
Cleveland Row, St. James's, S.W.1. Supplies are
available through the usual trade channels.

\*Registered



LIGHT AND PRIVACY





## **NEO-CLASSIC RADIATORS**

Ideal's cast-iron Neo-Classic radiators give high heat transmission for all-through constant warmth. Long-life warmth, too, thanks to corrosion resistance and precision construction. These radiators are built to last. Their section construction has many advantages, not only at the planning stage, but later when heating requirements increase or decrease. You can add or remove sections whenever you want—with perfect ease! For details of the full range of Ideal cast-iron radiators, please write to Ideal Boilers & Radiators Limited, Ideal House, Great Marlborough Street, London W1. Telephone GERRARD 8886.

IDEAL VALVES AND UNIONS COMPLETE THE JOB Many types of both cast gunmetal and hot pressed brass are available. All can be supplied in polished and chromium-plated finishes, and in easy-clean patterns. 520



IDEAL - Standard

BRITAIN'S LEADING MANUFACTURERS
OF DOMESTIC HEATING EQUIPMENT





You mean this oasis of calm, quiet and co-existful peace is the same echoing chamber that was our boardroom?

Precisely. Cullum have finished the job... and our new acoustic tiled ceiling is in. Even Lord Lud's voice will lose the unpleasantly stentorian tone it assumes after you have announced the half-yearly dividend.

Acoustic tiles, eh. Appealing to the eye as well as the ear, are they not? Dash it, what will they think of next!

Nothing new about it, Sir Henry. Cullum have been recognised as the leading distributors of acoustic tiles since the year Trigo won the Derby. Over 30 years in fact.

You are indeed a mine of sound information, Fortescue. Remind me to arrange a vote of thanks to Cullum at the end of the meeting.

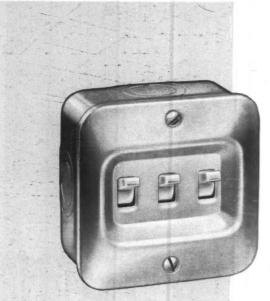


MASTERS OF SOUND

BRITAIN'S MOST EXPERIENCED ACOUSTIC ENGINEERS. Suppliers of all Leading Acoustic Tiles

HORACE W. CULLUM & CO. LTD., The Acoustic Centre, 58 Highgate West Hill, London N.6. Tel: FITzroy 1221 (6 lines)

DHB 9310





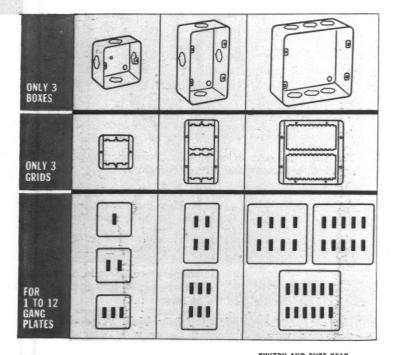
surface switches in steel boxes & covers

now

- 3 sizes of box. Deep drawn, Dual knockouts
- \* 3 grids
- \* 1-12 gang
- Maximum protection for switch dollies
- Boxes and covers finished aluminium stove enamel
- \* Prices to please you

#### INTERCHANGEABLE ACCESSORIES

5 amp. 1-way S.P. switch 15 amp. 1-way S.P. switch 5 amp. 2-way S.P. switch 5 amp. double pole switch 5 amp. 2-way and off switch 5 amp. intermediate switch 5 amp. 1-way S.P. secret switch 5 amp. 2-way S.P. secret switch Mains voltage bell push Neon indicator



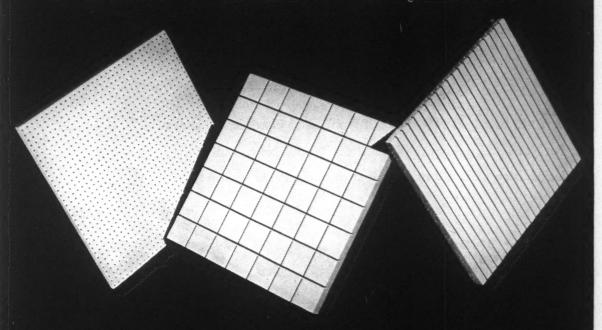


## G.C. INSTALLATION EQUIPMENT GROUP

THE GENERAL ELECTRIC CO. LTD., MAGNET HOUSE, KINGSWAY, LONDON, W.C.2 INSTALLATION EQUIPMENT GROUP HEADQUARTERS, FOUR ASHES, WOLVERHAMPTON

SWITCH AND FUSE GEAR H.R.C. FUSES OVERHEAD BUSBARS RISING MAINS CONDUIT PIRELLI GENERAL CABLE CABLE TRUNKING UNDER-FLOOR CABLE DUCTS **ELECTRIC WIRING ACCESSORIES** BELLS

## CONTEMPORARY



## ACOUSTICS!



Swiss pressed wood-fibre Perforated, Rilled and Chequered acoustic tiles and Rilled Boards 8'2" in length, all Factory Primed.



Contemporary acoustic wall and ceiling treatments in new and decorative materials.



High acoustic efficiency, absorption co-efficients increasing progressively from 0.45 at 250 c.p.s. up to 0.90 at 4,000 c.p.s.



Low thermal conductivity (0.35 B.T.U/in./sq.ft./hr./°F diff.) thus providing valuable heat conservation at no extra cost.

Surveys, estimates, designs & specifications without obligation

## HERMESEAL

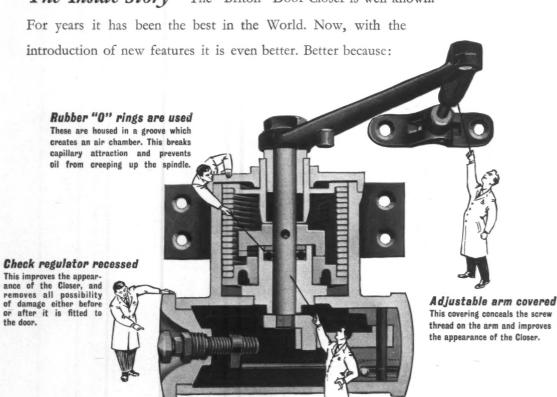


HERMESEAL ACOUSTICS LIMITED

HEAD OFFICE: 4 PARK LANE, LONDON, W.1. Telephone: GROsvenor 4324 (5 lines).

# Improved BRITON' Door Closer MK III

The Inside Story The "Briton" Door Closer is well known.



All details can be found in the Barbour Index, File No. 53.

<sup>6</sup>BRITON<sup>9</sup>

See our exhibits at the Building Centre, 26 Store Street, London, W.C.I.

**Bearing lengthened**This improves the stability and alignment of the spindle, and

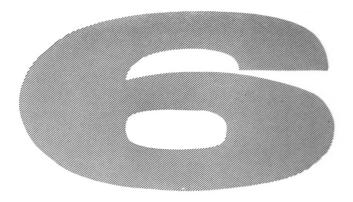
new method of oil sealing.

provides a seating for a

The prevention of draughts and banging doors is in your hands. Specify "Briton" and you eliminate both. It fits right and left hand doors without alteration, and the spring can be regulated to six different strengths by finger tip control. Doors are closed both smoothly and silently. When a "Briton" Door Closer is fitted it can be relied on. It is guaranteed for ten years!

WILLIAM NEWMAN & SONS LTD. HOSPITAL STREET BIRMINGHAM 19

## THE LOGICAL USE OF COLOUR IN BUILDING



#### **Colour names**

The English language is an accommodating language. It acquires and quickly assimilates ideas, manners of expression, and words of other languages. Its vocabulary, ever changing ever widening, receives from those who use it almost daily additions of words created or coined to express a sensation, object, scene or experience.

It is of interest then to examine the names given to colours by the English language. These are few - blue, green, yellow, red and purple. Purple was the name given to Imperial Crimson and is related to status rather than colour. The remaining four words dig deep into the history of the language and have been used for centuries as basic words to describe the sensations evoked by differing fluxes received by the eye. These four colours are also those showing little or no change in hue with change in luminancethey remain fixed. The nature of the sensation in each case is distinct; red is not yellowish, greenish or bluish, and so on. By physical methods of measurement these colour names can be fixed in wavebands of the visible spectrum. They are the names given to the basic hues which, together with black and white, can create the whole of the colour range that we know today. They are also the basic fluxes that give us colour vision; three parameters-yellowblue, red-green, and light-dark.

All other colour names (and they are now legion) are derived words or names of association. Aquamarine (a blue-green) is the name of a blue-green gem. Jasmine (a yellow) is the name of a shrub with a yellow flower.

Although colour names are useful in preparing a decorative scheme, it is advisable to use a subjective system of nomenclature such as the Munsell or Adams system, or some physical criteria such as selective reflective power, in determining colours suitable for functional decoration. Associative colour names can be a trap to the unwary since the association may not be a true one.

This is one of a series by Goodlass Wall and Co. Ltd. paint specialists since 1840 and manufacturers of the famous Combinol and Valspar paints — who will be pleased to give free advice on colour schemes and painting specifications. Goodlass Wall and Co. Limited, Corn Exchange, Liverpool 2, and 179|185 Gt. Portland St. London W.1.

## A Kenwood Kitchen sells the

Make Kenwood appliances part of your kitchen plans—and every woman will persuade her husband to buy! For Kenwood gives you the most advanced labour-saving function and design.

A Kenwood Wastemaster is the quickest, most efficient and hygienic way to dispose of kitchen garbage. Fitting under the sink, in place of the normal U-pipe, it grinds up and flushes away all refuse, from tea-leaves to chop bones.

Install a Kenwood Automatic Dishmaster to do all the washing-up—from finest glass and china to greasy pots and pans. The Dishmaster plumbs into the domestic hot water supply . . . and does away with the need for double sinks and draining boards.

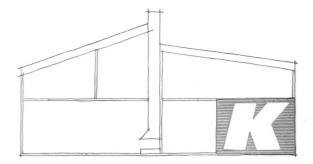


## They want the home with

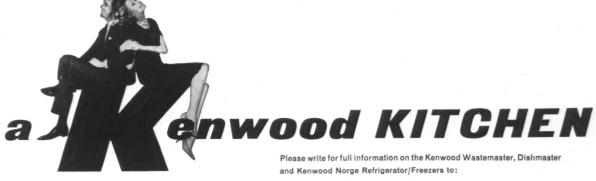
WP3-202

## house!

The magnificent Kenwood Norge Refrigerator/Freezers almost make kitchen larders obsolete! Each is a complete food storage unit...with separate deep-freezer cabinet as big as many ordinary refrigerators, and a larder-sized main refrigerator compartment, which is entirely self-defrosting. These handsome two-in-one models meet the growing demand for real home deep-freezing and larger capacity refrigerators in a single, compact unit.







DEPT. 33, KENWOOD MANUFACTURING (WOKING) LTD., OLD WOKING, SURREN

## Reyrolle

Metalclad
protected-type
weatherproof

## PLUGS AND SOCKETS AND INTERLOCKED SWITCH-PLUGS

Based on B.S.196



Ask for pamphlet No.1252

A. Reyrolle & Co. Ltd - Hebburn - County Durham - England



design, giving daylight advantage.

Fire Research Organisation.

The labour saving modern method of roofing and partitioning

Translucent polyester corrugated sheet in rolls and flat sheets



Manufactured in continuous length (up to 200 ft.), without welding, PLASTICLAIR makes installations *simple* and *speedy* with conventional methods of fixing—less structural support required and long maintenance free life. PLASTICLAIR over-

comes the monotony of dull uninteresting surfaces and permits unlimited scope in

PLASTICLAIR is available in over 7 different colours, widths of 36", 44", 48", 60" and 72", standard and self-extinguishing qualities both having been tested by the Joint



Send this coupon for illustrated technical brochure and sample, (if required,

**ADDRESS** 

# Put the sun into your ceilings





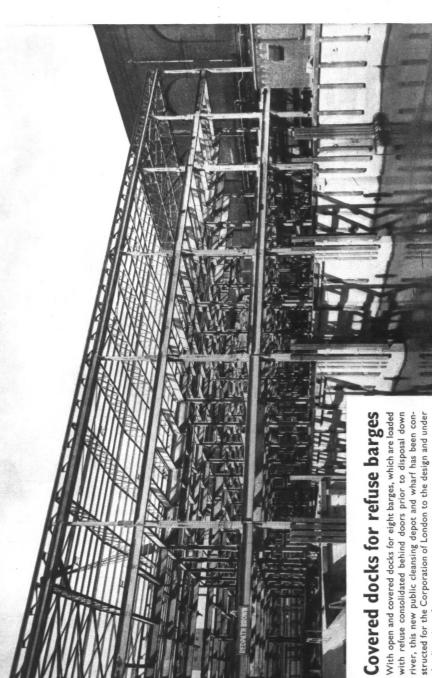
Display Warehouse and Offices, Birmingham, for Messrs. Richard Lunt & Co. Ltd. Architects: Messrs. Essex, Goodman & Suggitt. Consulting Engineers: Messrs. Hoare, Lea & Partners. Heating Engineers: Messrs. Hope's Heating & Engineering Ltd.

- Efficiency with comfort
- Plaster Undersurface tiled or in-situ
- Decorative and acoustic
- Uses low temperature hot water

RADIANT HEATING & ACOUSTIC CEILINGS

STRAMAX CEILINGS (G.B.) LIMITED

19 Rea Street South, Birmingham, 5. Telephone: MiDland 4674 London Office: 170/172, Falcon Road, Battersea, S.W.11. Telephone: BATtersea 2587.



the direction of:-

City Engineer: Francis J. Forty, Esq., O.B.E., B.Sc., M.Inst.C.E.

Mott, Hay & Anderson, Civil Engineers for Dock and Depot Foundation.

Sir Hugh Casson, M.A., R.D.I.,

for Architectural Cladding, Administrative Block layout.

H. A. Sandford, Esq. M.A., F.G.S., M.I.Mech.E.,

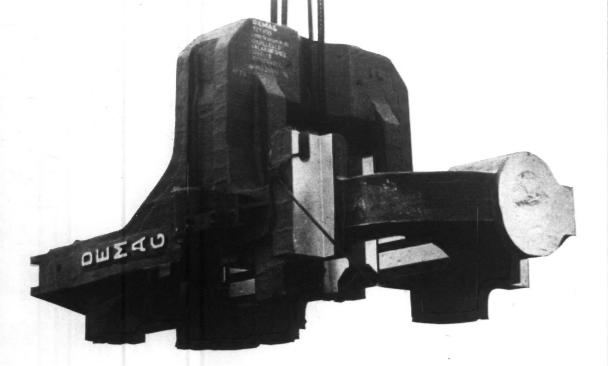
for Electrical and Mechanical work.

The illustration shows the structural steelwork as designed in the City Engineer's Office, 1,700 tons, before cladding.



Branches: EDINBURGH, GLASGOW, LONDON and MANCHESTER DPATH BROWN STEELWORK BY

# THE LANARKSHIRE UNIVERSAL BEAM MILL



At Motherwell, the steel centre of Scotland, the Universal Beam Mill is at an advanced stage of construction.

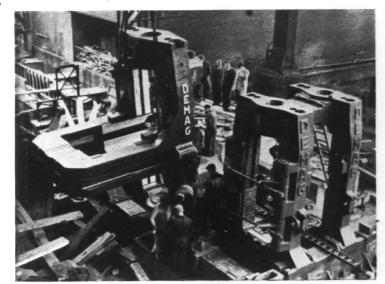
When the new mill comes into operation the Lanarkshire Steel Company will be producing a wide range of Universal beams and columns for various structural uses in Britain and overseas.



## The Lanarkshire Steel Co. Ltd.

MOTHERWELL SCOTLAND

One of the Colville Group of Companies



## Knight attack...



Well, not exactly, but our Mr. Knight is not averse to getting down to brass tacks over a glass of beer . . . It all adds emphasis to the many ways that this fast-growing British Company welcomes the opportunity of working with architects. Yes, even in the relaxed atmosphere of the 'local'.

A great deal of thought goes into today's architecture, not least is the attention given to framing the building. Because 'Windowall' curtain walling makes for easier planning—at all stages of the project, architects are finding in this system new imaginative possibilities and an even greater saving in time, labour and money. Little wonder that life becomes easier—and even the busy architect has more time for relaxation.

At Quicktho, Mr. L. A. Knight, our Sales Manager, has a talent for making your day so much easier in so many ways.

## QUICKTHO

ENGINEERING LIMITED

5, Grafton Street, London, W.I. Telephone and telegrams: HYDE PARK 1806 (5 lines)





For YOUR offices in the 60's



NQ

BENZAMIN



ONE OF THE WORLD'S LARGEST PRODUCERS OF INDUSTRIAL & COMMERCIAL LIGHTING FITTINGS BENJAMIN ELECTRIC LIMITED . TOTTENHAM . LONDON . N.17 . TOTTENHAM 5252

# ARIBORITE

At last it is possible for British architects and designers to specify ARBORITE. Unchallenged as the predominant decorative and industrial laminate in Canada, and already well known in more than sixty countries, ARBORITE is now available here.

For panels, facings, fittings and furniture in buildings great and small, ARBORITE offers a versatile surfacing material with a new-found range of colour and effect-with wood-grains of outstanding realismwith marble finishes as cool and classical as Carrara rock-with inlays and exclusive silkscreen designs that permit you to carry an original decorative theme right through your work.

It is produced to satisfy the client's requirements, to inspire the architect and designer, and to meet the practical needs of the builder, ARBORITE is ready to provide an extensive choice of laminates with which to "face the future".

Twenty-nine sizes of sheet Choice of 85 patterns Unique edge trim and twin trim Leaders in post-forming and bending grades

Special design and advisory service

#### MAIN DISTRIBUTORS FOR ARBORITE

#### LONDON AND THE HOME COUNTIES

George E. Gray Limited, Joinant House, Eastern Avenue, ILFORD, Essex Telephone: VAL 8344

L. Hill (Veneers) Limited, 17 Great Eastern Street, LONDON, E.C.2 Telephone: BIS 4411

C. V. Creffield & Company Limited, Levborne Whari, Horton Bridge Hoad, WEST DRAYTON, Middlesex. Telephone: WE3 4321

#### SOUTH OF ENGLAND

Modern Southern Supplies (Sussex) Limited, Modern Southern Buildings, Goring Street, GORING-BY-SEA Sussex Telephone Goring-by-Sea 44681

## SOUTH-WEST ENGLAND

Channel Plastics Limited, Flowers Hill, Brislington, BRISTOL, 4

#### EAST ANGLIA

Arthur Saul Limited, St. Helen's Wharf. Bishopgate, NORWICH Telephone: Norwich 28241/2/3

#### MIDLANDS

Rudders & Paynes Limited, Chester Street. ASTON, Birmingham, 6
Telephone: Aston Cross 3071

#### NORTH-WEST ENGLAND

Heaton Tabb & Company Limited, 55 Bold Street, LIVERPOOL, 1. Telephone: Liverpool Royal 3457/8

THE ARBORITE COMPANY (U.K.) LIMITED BILTON HOUSE 54/58 UXBRIDGE ROAD EALING LONDON W5 TEL. EALING 0116 (a substatory of The Arborite Company Limited of Montreal, and Quebec, Toronto, Winnipeg and Vancouver)

#### NORTH-EAST ENGLAND

A. J. Wares Limited, King Street, SOUTH SHIELDS. Telephone: South Shields 60381

### NORTH OF ENGLAND

Arnold Laver Wallboards (Leeds) Limited, 2 Elmwood Place, Camp Road, LEEDS Telephone: Leeds 28499

#### SCOTLAND

Graham & Wylle Limited. Mill Street, Bridgeton, GLASGOW, S.E. Telephone: Bridgeton 4831

#### SOUTH WALES

Meggitt & Jones Limited, East Tyndall Street, East Moors, CARDIFF, Telephone: Cardiff 22316

NORTHERN IRELAND

Heaton Tabb & Company Limited, Queens Road, BELFAST. Telephone: Beliast 58205

Sub-stockist for Northern Ireland John McNeill Limi ed, 109 Corporation Street, BELFAST, 1. Telephone: Beliast 24671

# THE NEW FOR BRITAIN

# Face the future with ARBORITE

CANADA'S LEADING LAMINATE

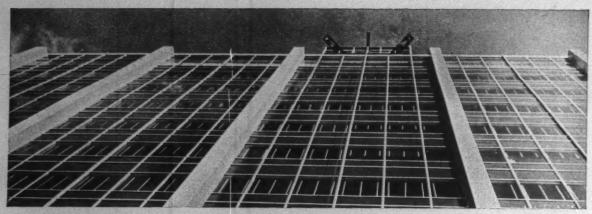


ARBORITE, by far the largest-selling facing material in Canada is specified and used by Government Departments, Crown Corporations, Hotels, Hospitals, Public and Municipal Institutions, Banks, Restaurants, Departmental Stores, Supermarkets, Public Transport and of course in the home for Furniture, Doors, Wall Coverings and for a hundred and one other purposes.

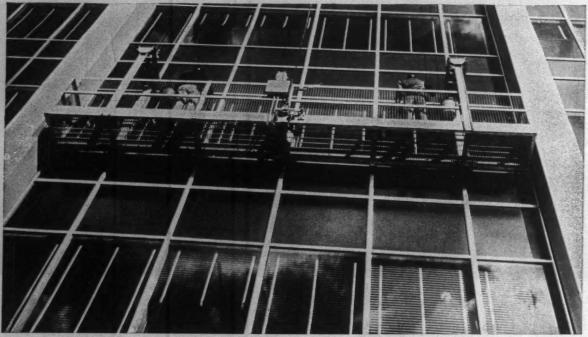
◆ The Saracini Building in Toronto has walls panelled in to in. ARBORITE on plywood.

ARBORITE postforming grade gives a contemporary sill to the windows of the Queen Elizabeth Hotel in Montreal.





## The answer to the face-maintenance problem



The increased use of curtain walling, with its vast areas of glass and other sheet cladding materials, plus the demand for sealed air-conditioned buildings, has given rise to a major functional problem—that of accessibility for cleaning, service

The 'ESCALER' Elevator system solves this problem. Providing completely safe access to every square inch of building face, the architect gains complete freedom in fenestration which hitherto was conditioned by the scale of opening lights.

The 'ESCALER' system includes roof track, roof car and platform tailored to suit the modules and contour of new buildings.

Operators have complete push button control of location and required height. Electrical and mechanical interlocks prevent any misuse. Building Superintendent may be con-tacted by 'phone from any platform location. Platforms are restrained to building face by "built-in" guides which form an architectural feature of the building.

For buildings up to six storeys high, angulated cable versions are available.

The 'ESCALER' system lends itself to flexibility and we welcome discussion with Architects at the planning stage of any new project. Layouts of proposals are submitted without obligation.

#### ESCA Elevator



#### Write for brochure (N8) to: ACCESS EQUIPMENT LTD

MAYLANDS AVENUE, HEMEL HEMPSTEAD, HERTS Boxmoor 5781-4. Telegrams: Accesequip, Hemel-Hempstead.

TA2533

tough brush-applied tile-like finish for walls

Cleanliness is an absolute requirement in many situations and TYLEX—the tile-like coating for walls—is the ideal answer. In hospitals, food factories and similar industries, schools, canteens and laboratories TYLEX is providing hardwearing continuous wall surfaces with no joints to harbour dirt or bacteria. Resistant to moulds, steamy atmospheres, grease and many forms of chemical attack, TYLEX provides an inexpensive alternative to costly glazed tiling at no more than the cost of good paint.

Its tough, long lasting finish on new and old walls stays through any amount of cleaning and frequent washing. Specification sheet and attractive colour range gladly sent on request.

walls wear TYLEX

TRETOL LTD., TRETOL HOUSE, THE HYDE, LONDON N.W.9. Telephone: Colindale 7223

Associate Company: Tretol (Scotland) Ltd., 65 Renfield St., Glasgow C.2. Telephone: Douglas 6133

# freclay

FOR PERMANENT SATISFACTION

SANITARY FIRECLAY TECHNICAL BUREAU

57 GREAT GEORGE ST. LEEDS 1

#### CERAMIC GLAZED FIRECLAY IN THE MODERN HOSPITAL

'Wash me in steep-down gulfs of liquid fire!'

Othello, v. ii.

By A. F. B. Nall, A.M.I.San.E., A.M.Inst. W.

Fireclay is a deep-mined clay which is subjected to a temperature of 1,200°C. to fuse the porcelain-like glaze to its strong, dense body to produce a homogeneous whole. The finished ware has, in effect, been washed in fire, for it is sterile and aseptic, clean and wholesome. Modern designs avoid germ traps and facilitate maintenance, so that this initial sterility may be preserved through a long and useful life.

Cross-infection—the bane of hospitals today—is alien to fireclay appliances: their gleaming surfaces are readily maintained in spotless condition, easily matching the cleanliness of the operating theatre.

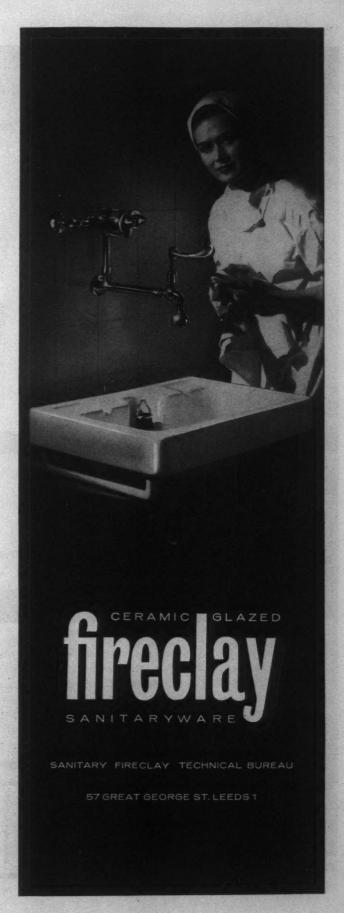
One cannot have a first-class glazed or enamelled surface without a robust base; the immense strength of the fireclay body provides an unequalled foundation for a ceramic glaze: this is of prime importance, because it is on the performance of its glaze that any sanitary ware is judged. Fireclay's resistance to thermal shock and to physical strain contribute to a glaze of unmatched durability and lustre. This basic strength and toughness are illustrated by the fact that it is in fireclay alone that the larger items of ware can be produced without failing in the kiln.

Here then, is a material that meets any demands of cleanliness and durability that it might encounter, that is robust enough to withstand hard and continuous use and that will preserve its pristine lustre for a maximum time with a minimum of attention. Neither acid nor alkali will impair its gleam, no sudden change in temperature will warp its shape or crack its glaze. Functional design has resulted in smooth, untrammelled surfaces and the elimination of sharp, awkward corners and inaccessible ledges—clean lines in every sense.

Sinks, washbasins, w.c. pans, slop-hoppers, urinals, baths, drinking fountains and mortuary tables of ceramic glazed fireclay are as much a part of the modern hospital as aseptic surgery, antibiotics and ultra-high-voltage X-rays.

A fully illustrated booklet, published in the interest of more and better hygiene and sanitation is available on request.

See the exhibits at the Building Centres, London, Manchester, and Bristol.



# Wardles-the name for vinyl fabrics





If you really want to see just how splendid Wardles vinyl fabric can look on walls or furniture you can see them in new buildings like Thorn House and The Shell Centre, Skyways Hotel and in many Dolcis branches and, in fact, in hundreds of places where people have insisted on having up-to-date, sensible and beautiful decorating fabrics. You can get the feel of Everflex and Æroflex just by sending this coupon.\*We will send you free samples of each fabric.



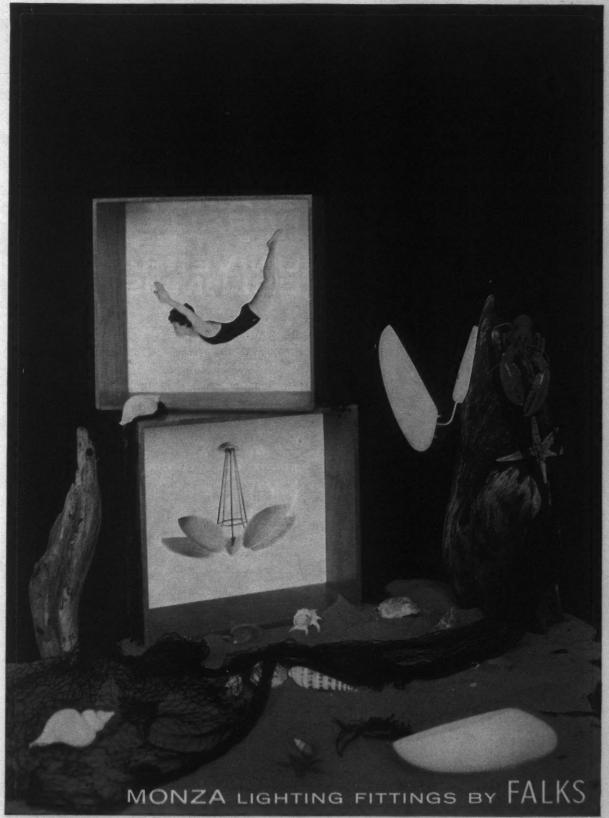
Just attach this coupon to your company notepaper, sign your name and post it today.

POSITION ....

TO: (DEPTAR3)
BERNARD WARDLE (Everflex) LTD
CAERNARVON, N. WALES
TEL: 3243

NAME				

Please send me sample of Everflex & Æroflex



91 Farringdon Road, London, E.C.1. HOLborn 7654. London Showrooms: 20/22 Mount Street, Park Lane, W.1. MAYfair 5671/2

Appleby-Frodingham Steel Company is now able to give details of the UNIVERSAL WIDE FLANGE BEAMS WITH PARALLEL FLANGES and UNIVERSAL COLUMNS, which will be available from their new UNIVERSAL MILL in the middle of 1961.

The Universal Wide Flange Beams with parallel flanges and Universal Columns will comply with the requirements of B.S. 4B 1959. (See Amendments 1 & 2).

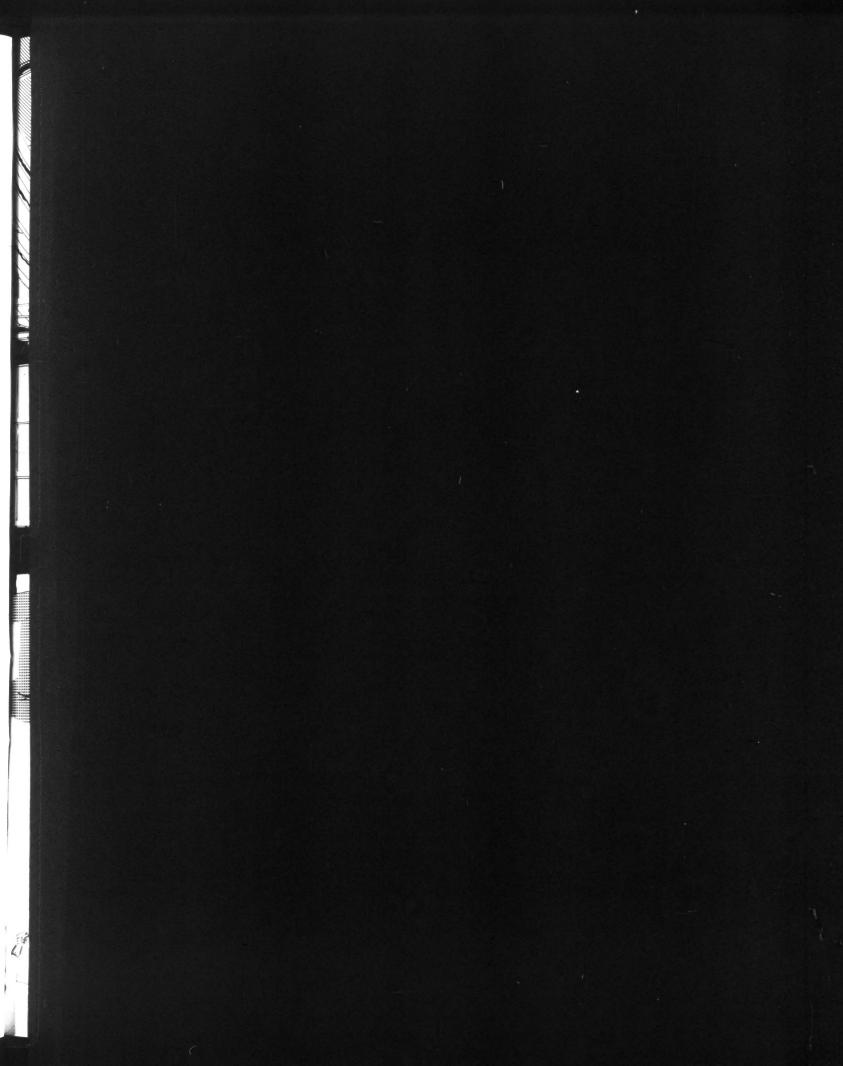
BEAMS From 24" x 9" down to 8" x 5½"

COLUMNS From 12" x 12" down to 6" x 6"
Inquiries will receive immediate attention.

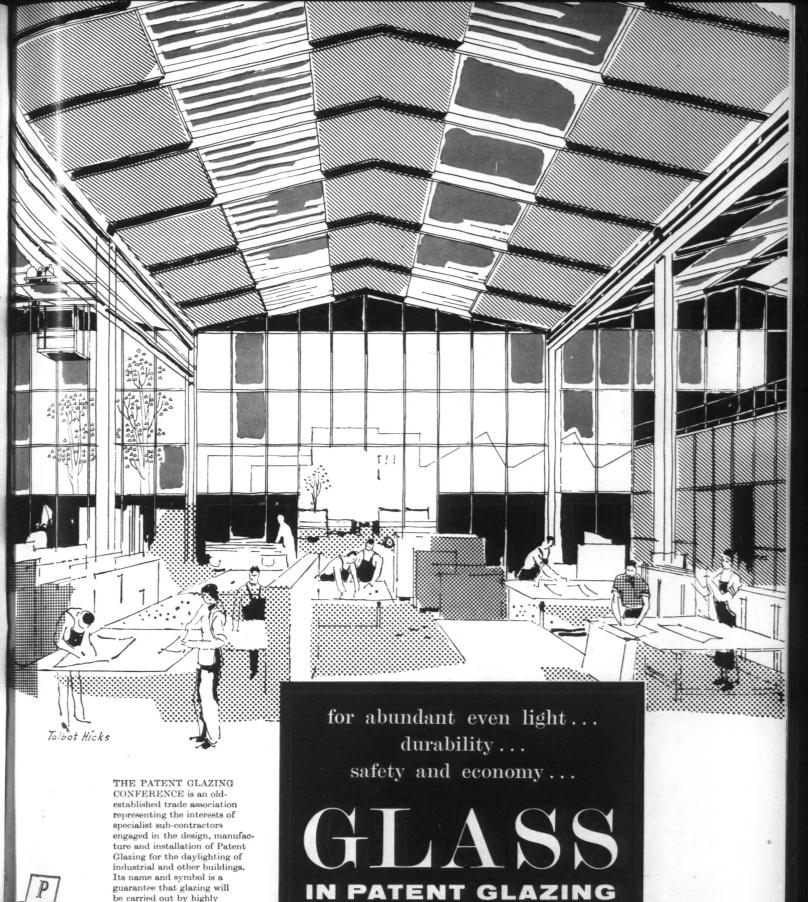
Inquiries will receive immediate attention.

Appleby-Frodingham Steel Company scunthorpe LINCOLNSHIRE

A branch of The United Steel Companies Limited









guarantee that glazing will be carried out by highly skilled craftsmen using the finest of materials.

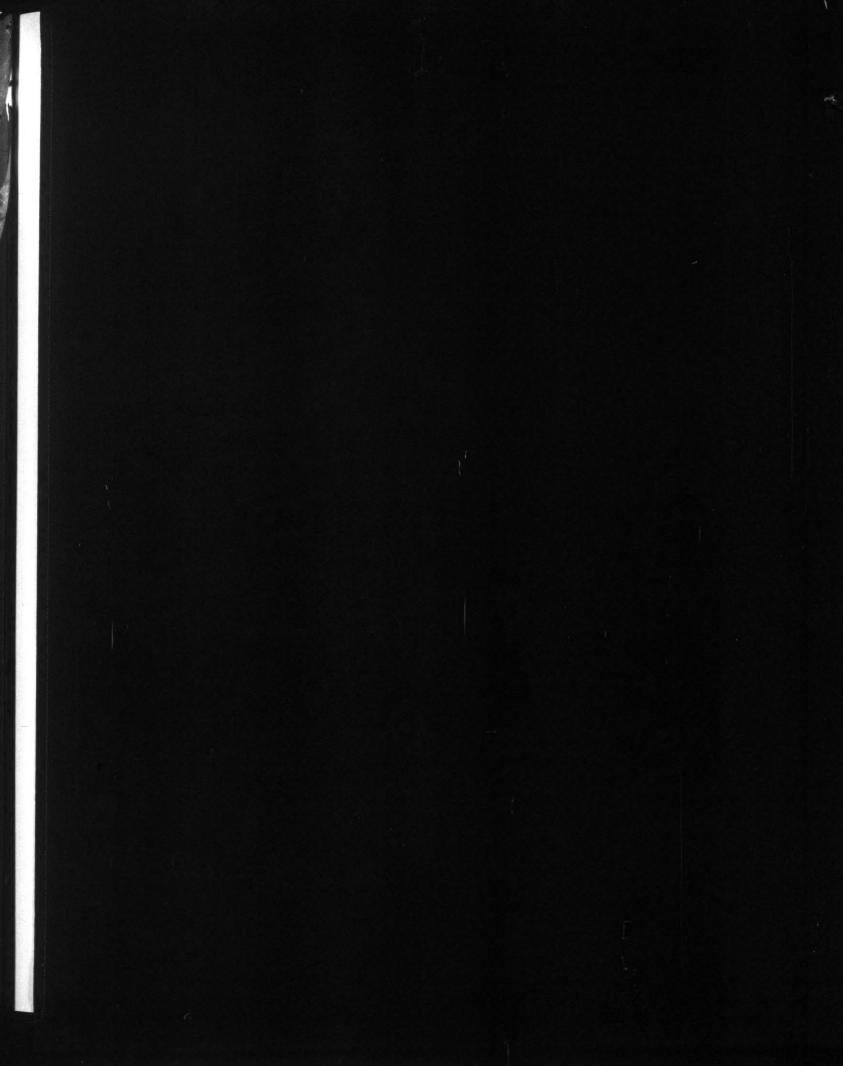
THE PATENT GLAZING CONFERENCE

EDINBURGH WEAVERS

102 MOUNT ST LONDON · W1

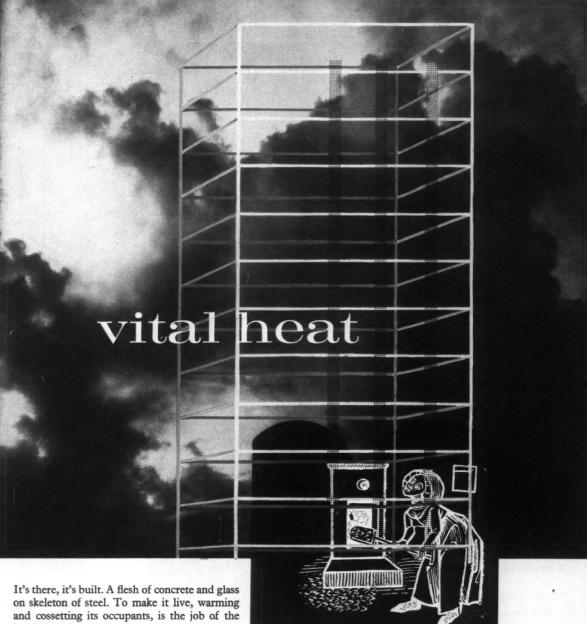
X

STEPHAN KNAPP
DESIGNED THIS
NEW PRINT





#### Bringing a building to life



heating engineer.

He doesn't start now, of course. Complex heating systems of today are designed when the building itself is on the drawing board. Erection and installation proceed as the building grows at the pre-arranged pace.

It's a problem of design, teamwork and timing, needing organization and experience. In fact, if it's a big job, it's more than likely that the whole thing was left in the hands of Haden-capable hands, thoroughly versed in the problems of bringing a building to life.

Heating, Air Conditioning **Piping and Sanitary Engineers** 

G. N. HADEN & SONS LTD., 7/12 Tavistock Square, London W.C.I and branches throughout the United Kingdom & Overseas

# HOPE'S windows



#### The new BIRMINGHAM CHAMBER of COMMERCE John H. D. Madin, Dip. Arch. Birm., A.R.I.B.A., Chartered Architect

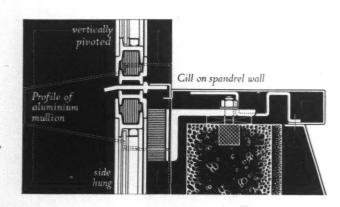
Interesting features of this contract include:

Two stretches of curtain walling 8 storeys high  $\times$  133 ft. long

Special projected and hinged vents enable the entire facade to be cleaned or repainted without the use of scaffolding

"Revolver" casements opening through 180°

Metal window boards and trim to reduce inside plastering



#### HOPE'S WINDOWS

The Name Guarantees



HENRY HOPE & SONS LTD SMETHWICK, BIRMINGHAM LONDON: 1 BERNERS ST., W.1

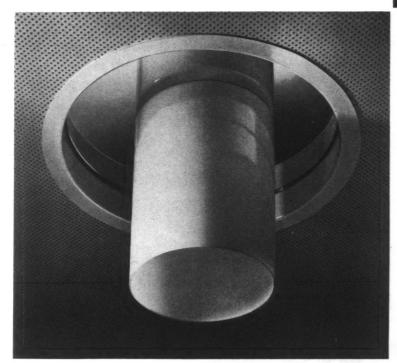
from designs by Noël Villeneuve



A L L O M

H E F F E R

AND COMPANY LIMITED



for these and other
designs based on cylinders
apply for brochure 212

# In Sandersons' magnificent new West-End Showrooms—





Architect: Slater & Uren, F.F.R.I.B.A. Contractor: J. Starkie Gardner Ltd.

May we give you further information regarding developments in decorative glass?

# GLASS

by PUGH

We are proud to have been commissioned to supply and fit glass panels, windows and balustrades for the new headquarters of the House of Sanderson.

We are specialists in the design and production of decorative glass to the highest standards of quality in manufacture, and accuracy in fitting. Glass panels may be transparent, translucent, wired, or toughened; decoration may be etched, sandblasted, brilliant cut, or any combination of these.

Glass — in the hands of the expert — can contribute greatly to contemporary decoration.



#### PUGH BROS. LTD

CRAFTSMEN IN GLASS

241 City Road, London, E.C.1

-Telephone: CLErkenwell 4996

# STEELWORK

What

ARE

all these

cuts

in cost?



#### THE STEEL ITSELF

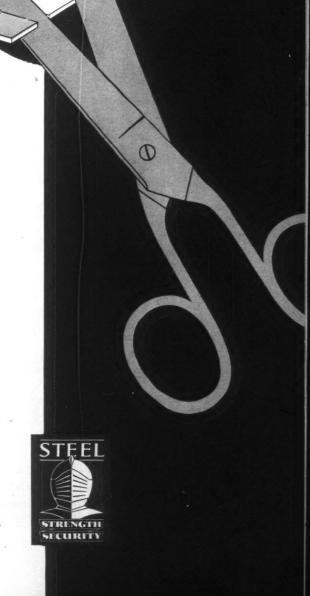
Higher working stresses have recently been sanctioned; why? Because the strength and dependability of British structural steel have attained such a high level.

In other words, the steel is so strong that for a given job you can safely use less of it ... LESS STEEL... LESS HANDLING ... LOWER COST.

This is the first of a series clarifying the recent cuts in cost of steelwork.

BRITISH CONSTRUCTIONAL STEELWORK ASSOCIATION, ARTILLERY ROW, WESTMINSTER, S.W.I

B·C·S·A



#### above all...

# PERMANITE

the first name one thinks of for . . .

#### asphalt roofing

Consult Permanite Limited for technical advice at the planning stage.

Also specialists in Asphalt Flooring and Tanking.



permanite limited, based on london, birmingham, manchester and portsmouth



3M Brand "RIBBONSEAL" Joint Sealing Strip will provide an effective weathertight seal where it can be held under compression and where joint tolerances are closely controlled.

It is available in a wide range of preformed sections and diameters supplied in cartons and handy reels.

Full specifications including wind loading tests are contained in the "RIBBONSEAL" leaflet obtainable from 3M.

Write for your copy now.

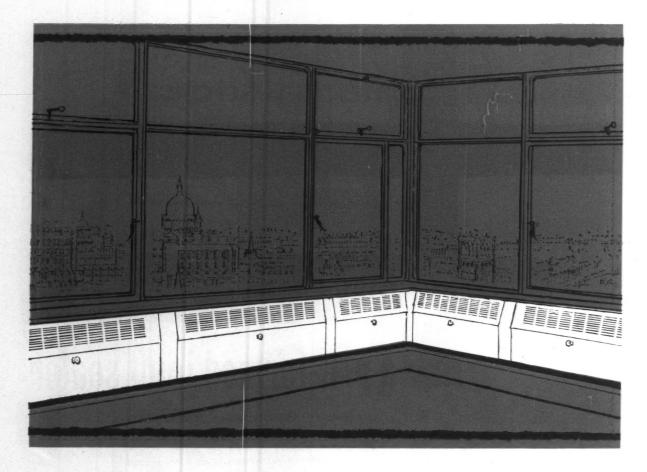
Made by MINNESOTA MINING & MANUFACTURING CO. LTD. 3M House · Wigmore Street · London W1 · Hunter 5522

ALSO AT BIRMINGHAM EAST 2051 · MANCHESTER DEANSGATE 8571 · GLASGOW CITY 6704 · BELFAST 32811

#### The specification is

Copperad Sill-line

#### for STATE HOUSE, High Holborn



More than  $2\frac{1}{2}$  miles of Sill-line have been fitted throughout the fifteen floors of this new office block. Easy to install, Sill-line fits neatly under the window sills in a continuous run. The system, which is High Temperature Hot Water operated, was selected for its flexibility. Office partitions can be moved and even heat maintained at all times. Above all, Copperad Sill-line gives

- \* all-round warmth at minimum cost.
- \* equal and continuous heating along the outside wall the normal point of loss.
- \* healthy working conditions by air circulation.

Heating Engineers: Young, Austen & Young. Architects: Trehearne & Norman Preston & Partners, F.R.I.B.A., F.R.I.C.S.

Consulting Engineers: R. Travers Morgan & Partners.

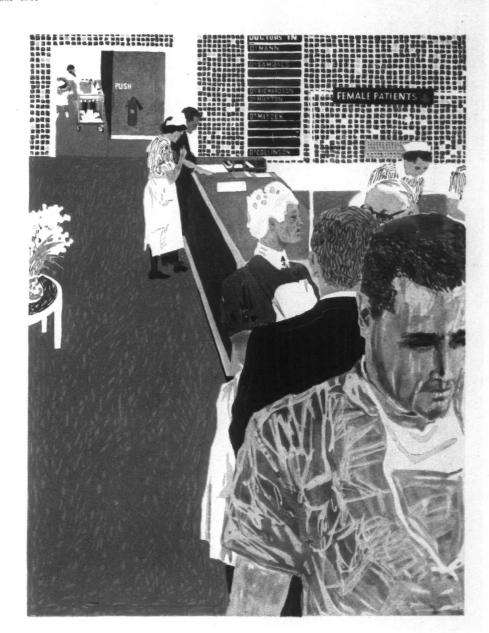
Builders: Tersons Ltd.

Copperad Ltd., Colnbrook, Bucks

Telephone: Colnbrook 2521

Telegrams: Copperad, Colnbrook

DS dept
DDIST
IANCES
ER'S dept
TON
ERAPY
CIAN &
DS



#### LINOLEUM belongs to Modern Living

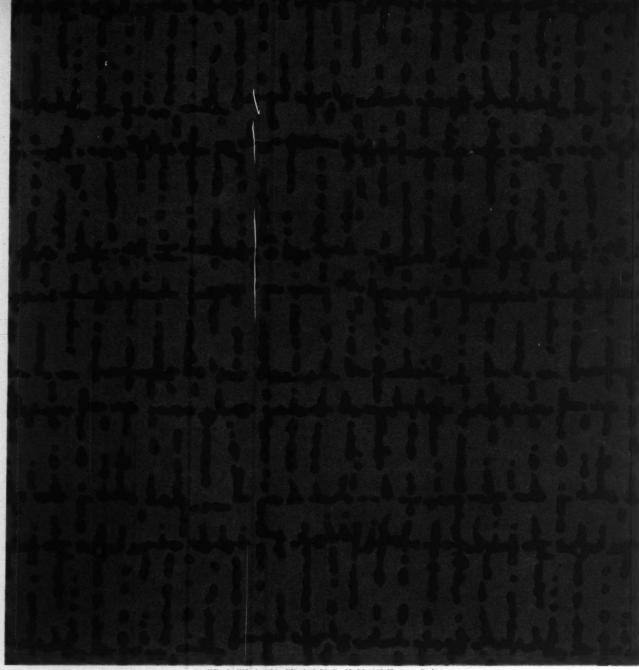


With acknowledgements to Yorke, Rosenborg & Mardall, Archis, FF/FRIBA Architects to the SW Metropolitan Regional Hospital Board

Ask any architect—he will tell you that today linoleum is one of the most versatile weapons in his creative armoury. Its applications are so wide. It expresses brilliantly the mood of any decorative theme—contemporary or period. And a constant flow of new colours and styles gives scope for endless variety of 'personalised' and novel designs. In other ways, too, linoleum belongs to modern living. It is so easy to care for—so quick to clean. It is quiet to the tread and no flooring equals linoleum for long wear . . . Always plan for linoleum. Illustrated left: the first stage of the new Crawley Hospital makes extensive use of today's finest flooring—linoleum.

"THELMA" stands for the Linoleum manufacturers' association, 127 victoria street London, s.w.1. For further information write to the Association or to any of the pollowing members: BARRY OSTLERE & SHEPHERD LTD., Kirkcaldy - DUNDEE LINOLEUM CO. LTD., DUOLEUM MANUFACTURING CO. LTD., 6 Old Bailey, London, E.C.4 - MICHAEL MAIRN & CO. LTD., Kirkcaldy - NORTH ERITISH LINOLEUM CO. LTD., Dundee - SCOTTISH CO-OPERATIVE WHOLESALE SOCIETY LTD., Falkland, Fife - JAS, WILLIAMSON & SON LTD., Lancaster.





"Cypher" designed by Elizabeth M. Gould. M 1012 Shown to Scale.

A new collection of machine printed wallpapers has just been compiled by the London Office of
The Wall Paper Manufacturers Limited 19/21 Mortimer Street, W.1.

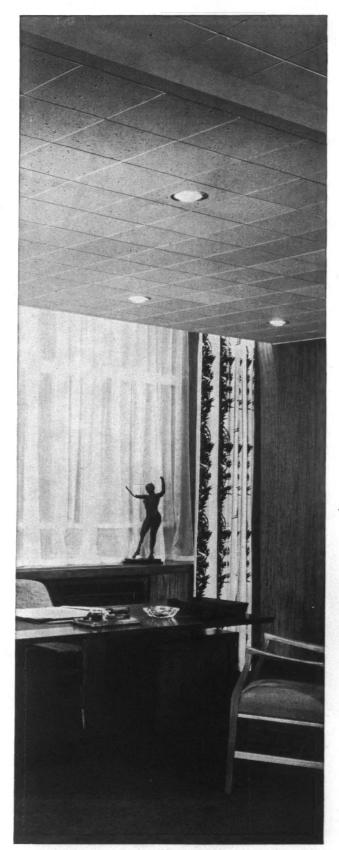
and is now available through wallpaper suppliers. Many prominent designers are associated with this collection
among them Lucienne Day, Jacqueline Groag, Terence Conran, Joyce Storey and William Gear.

Modus wallpapers, because machine printed, are moderate in price,
and in order to increase their usefulness to Architects and Interior Designers
all these papers have been treated with a special protective coating.



### MODUS

THE WALL PAPER MANUFACTURERS LIMITED 19/21 MORTIMER STREET LONDON W1



#### hedividends of silence...

A successful compromise between a conservative exterior and an adventurous and modern interior has been made at the Ionian Bank's building in Coleman Street, London E.C.2. Five of the Bank's directors share a large first-floor office. The elimination of excessive noise was considered essential and has been achieved by the use of Armstrong Travertone tiles. The superb decorative effect of these fire-resistant mineral wool tiles has enhanced the appearance of the room, where the individual tastes of the five directors have been effectively blended.

Cushiontone and Corkoustic are other Armstrong acoustic tiles with a high sound-absorption coefficient. Armstrong experts are at your service to assist you in the choice of acoustic materials and the solving of acoustic problems. Please write for full details.

The directors' office in the Ionian Bank.

Architects: Guise, Davies & Upfold

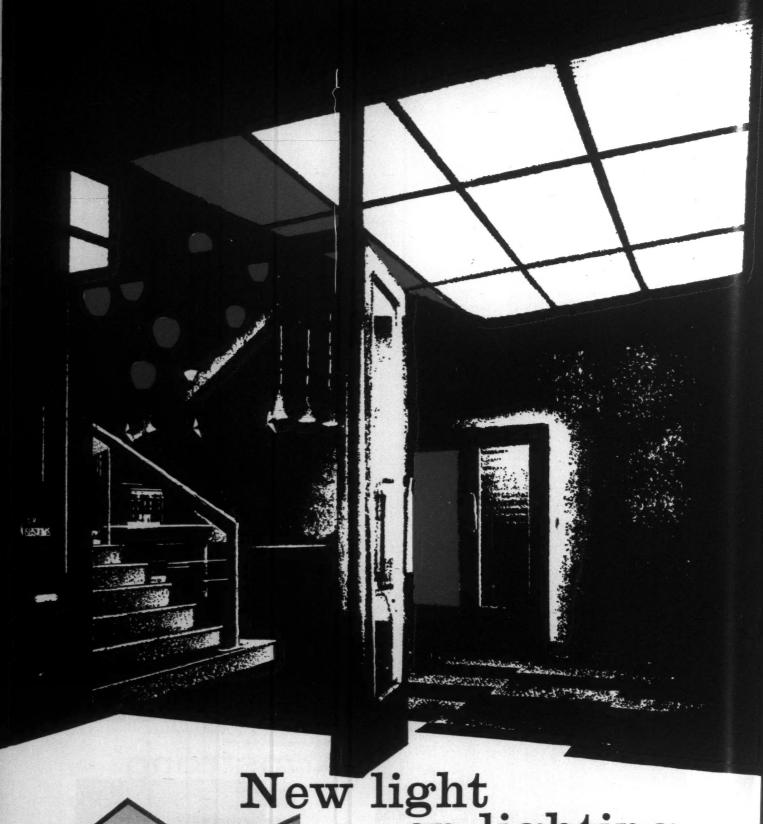
Acoustic contractors: Horace W. Cullum & Co. Ltd.



## Armstrong

Armstrong Cork Company Ltd Acoustics Department Carlisle Road, Colindale, London N.W.9 Tel: COLindale 9744

AT 22



# New light on lighting

Lumenated Ceilings offer three systems of practical but imaginative lighting-Standard, Module, and the new lowcost Westminster ceiling. Our engineers know a great deal about every aspect of lighting and welcome opportunities of collaborating with the architect in the earliest stages of design. Please send for details of the Lumenated Ceilings range and services.

#### chairmanship...

. . . is the art of choosing not only the right chair for the right man but also the correct contract furnishing service for your offices. That's why good chairmen pick ESAVIAN furniture! They know how cleverly it's designed—how well it's made—how ESAVIAN furniture is always in fashion!

Call in ESAVIAN today! Our contract service will furnish your office from floor to ceiling, including any special fitments you may require.

Have your secretary phone or write for full details of the Executive Desk illustrated, and other desks in the ESAVIAN range.







Esavian Works, Stevenage, Herts. Stevenage 500.
London Showrooms, 185 Tottenham Court Road, London, W.1.
Birmingham Showroom, Charles Street, West Bromwich. Tipton 1631.
Glasgow Showroom, 101 Wellington Street, Glasgow, C.2. Central 2369.



OLIMATT FLAT & SATIN SHEEN ENAMELS NULON SUPER EMULSION PAINTS

Architects: - Messrs. Louis de Soissons, Peacock, Hodges & Robertson



FOR PROTECTION . APPEARANCE AND ECONOMY

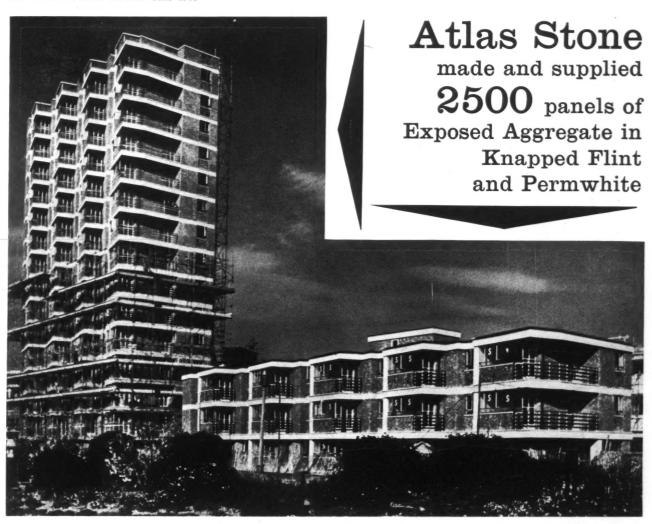
Sole manufacturers

W. & J. LEIGH LTD LONDON · BOLTON · GLASGOW

MANUFACTURERS OF FINE PAINTS FOR DECORATIVE AND INDUSTRIAL USE







The above photograph shows part of the development for Fitzleet Estates Ltd. Building Contractors: Bernard Sunley & Sons Ltd. Architects & Surveyors: Donald Harwin & Partners.



The Atlas Stone Co. Ltd.'s exposed aggregate was selected for the cladding panels used in the project illustrated above at Queensway, Bognor Regis. Left is a close-up of one of the knapped flint panels.

Atlas Stone are currently supplying 50 varieties of exposed aggregate and 7 varieties of architectural reconstructed stone:—Portland, Clipsham, Bath, Kentish Rag, York, Doulting and Ham Hill.

For further information write to:

#### The Atlas Stone Co Ltd.

Artillery House, Artillery Row, London, S.W.1

Abbey: 3081/2/3/4

#### Broughton Moor-The Green Slate for Greenwoods



Architects: Samuel Jackson & Son

The external appearance of Shops and Department Stores may profoundly influence the kind of customer they attract. That is why the natural and uncontroversial beauty of Broughton Moor Green Slate was chosen for the new Greenwood Department Store in Liverpool. The distinctive pastel greens of this naturally riven, frame-sawn or fine-rubbed

slate appeal to all sections of the community and lift the character of a building above the severely functional. Broughton Moor Green Slate weathers beautifully in all climates and corrosive atmospheres. As external and internal facings, floorings, copings and cills it adds permanent beauty to Shops, Residences and Skyscrapers the world over.

## Broughton Moor GREEN SLATE QUARRIES LTD

THE LAKE DISTRICT . LANCASHIRE . TELEPHONE CONISTON 225/6



**POLYTHENE** COATED

#### REINFORCED MOISTURE VAPOUR BARRIER

MOISTOP - is a SISALKRAFT product reinforced with unspun sisal fibres in the longitudinal and cross directions. The fibres are totally enclosed by two layers of high grade bitumen, which in turn are faced with tough, kraft paper, and one surface is coated with a layer of POLYTHENE.

The result of this combination is an effective MOISTURE VAPOUR BARRIER that combines the strength of SISALKRAFT with the virtues of POLYTHENE.

#### APPLICATIONS

Sarking under tiles and slates Moisture barrier in timber frame construction Under timber floors Moisture and air stop in walls Underlay to concrete Separation layer between concrete Curing concrete Form lining Protection from frost Temporary tarpaulin

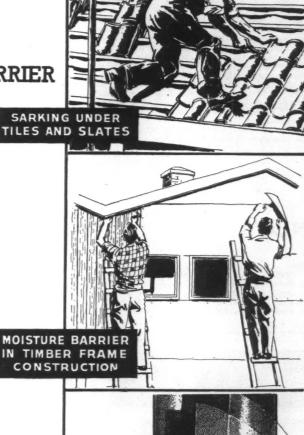
A PRODUCT OF BRITISH SISALKRAFT LTD

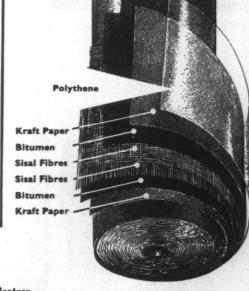
Information and samples from the SOLE DISTRIBUTORS

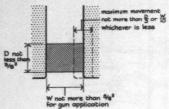
J.H.SANKEY & SON LTD

Established over a Century

ESSEX WORKS · RIPPLE ROAD · BARKING · ESSEX GRAMS: Brickwork Barking





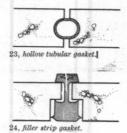


22, volume of mastic.

#### continued from page 430]

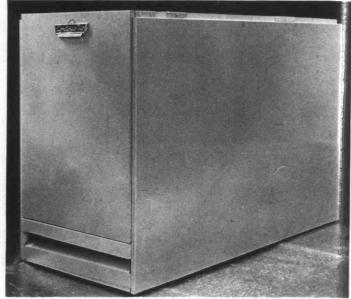
mastic should not be expected to accept movement greater than one-third of its depth or one-tenth of its width, 22. Hidden and inaccessible mastic pointing is not recommended, as it should in all cases be accessible

for periodic maintenance and renewal. Because of the many disadvantages of oil-based mastic, it will often be worth while to consider the use of one of the synthetic rubber sealants. Polysulphide synthetic rubber, despite its high cost and the need for skill in application, possesses remarkable adhesion and weathering qualities. Uncured butyl rubber, although



endowed with most of the weathering qualities of polysulphide rubber, is only about one-tenth the price and, since it is a one part compound, is easy to place.

A further development, which has found favour in light cladding, is the use of preformed gaskets of neoprene, cured butyl rubber and p.v.c. Gaskets generally require pressure to ensure watertightness, and this may be attained by forcing the panels against hollow tubular gaskets, 23, or by using the familiar 'zip-in' filler strip, 24, first used by Saarinen at General



1. floor-mounted oil-fired boiler by Johnson & Starley Ltd.

#### THE INDUSTRY

#### Warm air heating

Yet another Canadian company has invaded the warm air heating field in this country. Johnson & Starley of Northampton have entered into an agreement with Continue-Flo

Heating Products Ltd., of Canada, and are manufacturing a range of oil-fired boilers, with outputs of from 50,000 to 500,000 B.t.u.s per hour. The Continue-Flo system includes prefabricated duct sections

and accessories and these also are manufactured by Johnson & Starley. manufactured by Johnson & Starley. All models of the boiler with outputs from \$5,000 B.t.u.'s upwards are pressure jet operated. The heat exchangers and air filters and other working parts are contained in a simple enamelled steel casing. The primary heat exchanger is fabricated from the primary heat exchanger is fabricated. from aluminized high temperature steel and the secondary exchanger from cold rolled mild steel. The range of boilers includes both floor mounted.

1, and suspended.

Johnson & Starley Ltd., Bedford Road, Northampton.

#### Office partitioning

The well detailed partition, 2, was The well detailed partition, 2, was designed by Edward Samuel, A.R.I.B.A., and is manufactured as a standard assembly by Streatham Joinery Ltd. The photograph shows an installation in Thorn House. Basic frame comprises 2 in. by 2 in.

[continued on page 434

#### PERSONAL

#### We laminate our customers' special designs, charts, fabrics or wallpapers, in any quantity however small, and the services of our furniture workshops are always available to carry out

any further fabrication.

OFFICES: 203 Kings Road, Chelsea S.W.3. FLAXMAN 7061

#### PLASTIC LAMINATES



nated photo-mural for London & Overseas Freighters Ltd.

JAMES BEAUFIELD LTD

#### The House of MARSHALL & SNELGROVE

Innounce the inauguration of a new service for Contract Furnishing and Carpets

> is service is backed by the vast resources of Marshall & Snelgrove, who have one of the most comprehensive Carpet and Soft Furnishing departments in the Country.

A staff of contract specialists is available to help in every poss'ble way. Patterns, designs and suggestions are available at all times.

ENQUIRY FORM	MARSHALL & SNELGROVE SNELGROVE OXFORD STREET, OXFORD, W.1. LONDON, W.1. LANgham 3000  I SHALL BE GLAD TO SEE YOUR REPRESENTATIVE
- 1	ON TIME
	NAME
1	PROFESSION
- !	ADDRESS

'Good grief!' said the Senior Partner. Nearly 4 guid for a pencil sharpener!



Um...er...yes Sir. But this is a somewhat unusual p-pencil sharpener. If I might be p-permitted to ... er...demonstrate, Sir.

One simply has to take a p-pencil in one's right hand...or one's left hand would do equally well... and p-place it into this little . . . er . . . hole.

P-press down gently ... um ... so. And ... see ... the sharpener starts cutting automatically.

Allow it to run for a few seconds. Lift out. And p-presto! A p-perfect p-point!

Um...p-pardon, Sir? Oh yes, Sir. Most attractive. And you will observe that although it is electric, it has no unsightly flex.

If I might suggest, Sir. Just here, next to your blotting p-pad, would be the best p-place.

Er...just as you wish, Sir. Thank you, Sir. I was certain it would a-p-peal to you. From all good stationers 75/-

DLESS ELECTRIC PENCIL SHARPENER



Made by Kent Kordless Ltd., Studley, Warwicks.

continued from page 432]

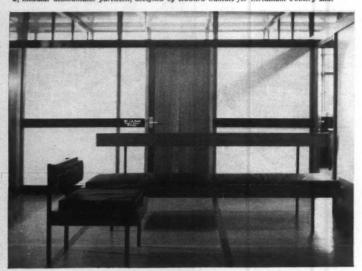
grooved mahogany posts and 5 in. by 1 in. rails. Solid infill panels are 1½ in. thick and have a plasticized cloth finish. Clear glass above door head is 32 oz. Adjustment is by means of a screw jack at the base of the posts. The price, which is competitive, is approximately 11s. per sq. ft. Streatham Joinery Ltd., 91-93 Effra Road, Brixton, London, S.W.2.

#### Acoustic duct

An irritating and quite serious problem which can arise in buildings with mechanical ventilation is the transmission of sound from one room

transmission of sound from one room | timber framed wall. The unit:

2 modular demountable partition designed by Edward Samuel for Streatham Joinery Ltd.



to another through the ventilating ducts. An American company with a relatively short but successful career in the manufacture of 'acoustically' lined ducts, has recently extended its activities to this country and is now manufacturing its range of 'Quiet Vent Silencers' here, 3. The range includes a type for fitting to the back of a door, one for fixing above ceiling level and one for building into a wall. Each type is made in six sizes and the one for building into a wall, which is the one illustrated, includes two standard sizes which are suitable for building in between studs of a timber framed wall. The units con-



3, the 'Quiet Vent Silencer' acoustic duct.

sist of 22 gauge steel outer casing and a 24 gauge perforated steel inner casing with insulation between. The manufacturers claim an average transmission loss of 40 decibels through a frequency range of 256–2,048 c.p.s.

Industrial Acoustics Co., Ltd., Victor House, Norris Road, High Street, Staines, Middlesex.

#### Acoustic Tiles

The Owens-Corning Fibreglass Corporation is now marketing its acoustic tiles in this country through Chemicals Trading Co., Ltd. The basis of

the tile is a glass fibre board in four-alternative finishes—Textured, which is simply finished with a white pain that does not seal the surface, Perforated, which is painted with washable white paint, Sonoface which is faced with a decorative plastic film in various patternadhered to the edges only in order t maintain the absorption propertie and finally Striated which is finished with a special non-sealing white finish. The tiles are  $\frac{3}{4}$  in. thick, Te tured and Striated are made in 24 in. by 24 in. squares and Perforated and Sonofaced in 12 in. by 12 in. square :. Tests of the properties of the tiles have been carried out in the USA and pending tests in this country it is worth recording these details. Tests worth recording these details. Tests on the sound absorption coefficients were made on a ceiling mounted on a metal suspended system with a 10 in. air space above and for the middle frequency range (1,000 c/s) were found to be 0.81 for *Textured* and *Striated*, 0.8 for Perforated and 0.76 for Sonofaced. On thermal conductivity the glass fibre base material has a K factor of 0.24 at 75°F. mean temperature. Light reflection is claimed to be over 85 per cent for Striated, over 80 per cent for Textured and Perforated, and over 65 per cent for Sonofaced (white finish).

The Chemicals Trading Company

The Chemicals Trading Company has a number of recommended fixers and points out that for any contract of 15,000 sq. ft. or more tiles may be made to special sizes.

made to special sizes.

Chemicals Trading Co., Ltd., Cree
House, 18-20 Creechurch Lane, London, E.C.3.

#### Timber waterproofing agents

A considerable amount of research has been carried out by the Timber [continued on page 436



SOUND PLANNING IS SECURELY BASED

ON

WEST'S SHELL PILING

Write for full details to:

WEST'S PILING & CONSTRUCTION CO. LTD.

Foundation Specialists · Design and Construction in Reinforced Concrete
BATH ROAD · HARMONDSWORTH · MIDDLESEX · TEL: SKYPORT 5222
Branches in London · Bristol · Birmingham · Manchester · Glasgow
Austrolasia: West's Shell Piling (Alsia) Pty. Ltd., Melbourne, Sydney, Adelaide & Wellington, N.Z.
France: Carbonisation Entreprise et Ceramique, Paris.

A MEMBER OF WEST'S GROUP OF INDUSTRIES



pile is firmly driven to a secure set in the load-bearing stratum, without fatigue in the pile core.

The modern method combining pre-cast and castin-situ piling, in which the



BARBOUR Index File 40

MANDER BROTHERS LTD., Dept. B6, Wolverhampton, England Tel: Wolverhampton 20601 (8 lines)

Cables: "Mander, Wolverhampton". Makers of Fine Paints and Varnishes since 1773

you at once.

#### continued from page 434]

Development Association on varnishes and other clear finishes as a protective coating to exposed woodwork. These, however, are comparatively costly finishes and it is possible to employ a cheaper type of finish provided the limitations are understood and appreciated beforehand. The TDA has now produced a report entitled *Timber Waterproofing Agents* by V. R. Gray and Marian Wheeler which is an account of recent work by them which aims to assess the effectiveness of less expensive finishes of the water repellent type.

Waterproofing agents of this kind do not prevent for long the washing out of colouring materials from the wood by rain, nor do they influence the absorption and loss of water vapour from the wood. They do, however, make water penetration more difficult and enable the wood to shed water more readily. The experiments described in the report followed the performance of twelve waterproofing treatments, including several proprietary types. All the finishes were applied to samples of western red cedar and the effectiveness of the various treatments was assessed by measuring the wetting angle of water on the samples treated with repellents both before and after exposure to the weather for one year. The authors of the report point out that water repel-lents attract dirt from the atmosphere and that darkening of the wood appears to be greater in treated than untreated material.

Conclusions drawn from the investigation suggest that various wax compositions give the most durable water repellent treatment. Varnish-'seals,' linseed oil and silicone resin do not withstand a year's exposure, although a proprietary mixture of linseed oil and wax pro-

vides fairly good results.

Copies of the report are obtainable from the TDA at 3s. 6d. each.

Timber Development Association, 21
College Hill, London, E.C.4.

#### CONTRACTORS etc

College Hall, Leicester University. Architects: Sir Leslie Martin association with Trevor Dannatt. Lettering and typography: Colin Forbes. General contractor: Wilson & Lovatt (Wolverhampton) Ltd. Subcontractors: Heating contractors and hot water services: Weatherfoil Ltd. Joinery and windows: East & Son. Metal windows: Crittall Manufactur-ing Co. Patent metal windows and patent roof lights: Quicktho Engineering Co. Patent glazing over dining hall: Luxfer Ltd. Glazing over spiral stair: Standard Maclean Ltd. Roofing: William Briggs. Precast concrete units for spiral stair: Croft Granite. Wood block, strip floors, cork tile and plastic tile: Stevens & Adams. Sanitary fit-tings: Stitsons Ltd. Main kitchen installation and ventilation: Radiation this data of the continuous Radiation Ltd. Wardrobes and other specially designed furniture: Wreake Valley Craftsmen. Ironmongery: H. & C. Davies. Lightning conductor: R. C. Cutting. Metalwork: Metalcraft Ltd. Flush doors and dining hall joinery: Wilson Lovatt Ltd. Cut out lettering, signwriting and exit signs: Hall of

New Cross. Internal telephone system: Modern Telephones. Special electric fires: Electroway Ltd.

Chamberlain Hall, University of Southampton. Architects: Basil Spence and Partners. General contractors: Hawkins (Gosport) Ltd. Sub-contractors: Stahlton floors and roof: Costain Concrete Co. Precast concrete copings, sills and wall facing slabs: Warings (Con-tractors) Ltd. Slate facings: Setchell & Sons. Ironmongery: H. & C. Davis & Co. Curtain track and fittings: Tyrell & Green Ltd. Sliding door gear: P. C. Henderson Ltd. Fly-over door gear: E. Hill Aldam & Co. Steekwork gear: E. Hill Atlanta Co. Steetach's sundries, balustrades, balusters and balcony window brackets: H. & C. Davis & Co. Cycle racks: Le Bas Tube Co. Incinerators: The Hygienette Co. Perspex louvre roof panels: Ekco Ensign Electric Ltd. Dome lights: Portsmouth Glass Works Ltd. Airvac square ventilators and type 'L' venti-lators: Greenwoods & Airvac Ven-tilating Co.; Furniture and Fittings: L.M. Furniture Ltd.; Elington Industries Ltd. Balcony panel: Jury Holloware Ltd. Hard-wood timber: Howard Bros. Bitumen felt roof covering: The Limmer & Trinidad Lake Asphalt Co. Timber trough roof and girders: Rainham Timber Engineering Co. Acoustic tiling: Insulatall Services Ltd. Hard-wood floors: The Acme Flooring & Paving Co. (1904). Structural steel-work: Evans & Nowell Ltd. Metal windows and doors: Henry Hope & Sons. Mechanical services installation: Benham & Son. Lift installation: Bennie Lifts Ltd. Kitchen equipment: Benham & Sons. Horticultural work: Hillier & Sons; John Waterer & Sons & Crisp Ltd. Copper roofing and felt underlay: Frederick Braby & Co. Metal windows: Metal Casements Ltd.

Horticultural work: Moorgreen Nurseries Ltd.

Treasury, Lincoln Cathedral. Architect. Louis Osman. Cathedral surveyor: Mr. Higgins. Sub-contractors: Me alwork: Stoner & Saunders Ltd. Gless: Store's Ltd. Special locks: The Bar ier Lock Co. Stainless steel casti gs: Firth-Vickers Ltd. Marble work: J. Whitehead & Sons. Light fitti gs: G.E.C. Electrical fittings: W. Greg pry & Son.

Dance Hall, Coventry, Arthur Ling, City Architect. General contractor: George Wimpey & Co. Sub-contractors: Structural steel: Matterson, Huxley & Watson. Windows and curtain walling: Hills (West Bromwich) Ltd. Basement water-proofing: Sika Ltd. Marble: W. H. Fraley & Co. Box office: Bath Cabinet Makers Ltd. Mosaic: Carter & Co. Portland stone: Bath & Portland Stone Firms Ltd. Roofing: Wm. Briggs & Sons. Lighting units: James Gibbons Ltd. Lifts: Otis Elevator Co. Carpets: Holbrooks (Coventry) Ltd. Illuminated ceiling: Isora. Neon sign: Moseley Neon Manufacturing Co. Chandelier: Bernard Schottlander.

Infirmary, Royal Hospital, Chelsea. Architects: Ministry of Works. General contractor: Sir Lindsay Parkinson & Co. Sub-contractors: Lifts: Evans Evans Lifts Ltd. PVC and wood block floor-Thorpe Bros. Copper roofing: Hollis Bros. Copper roofing: Thorpe Bros. (Wimbledon). Steel windows: Monk Metal Window Co. Aluminium windows: Williams & Williams Ltd. Joinery: W. H. Gaze & Sons. Insulated roof screed: Celcon Ltd. Steen provide. Provide to. Most Ltd. Slate panels: Broughton Moor Green Slate Co.



#### cormorant

Design Centre Award 1961

strong, stable, foldableand weatherwise

The Race Cormorant-new folding chair, for indoor, outdoor and sea-going use. With solid afrormosia frame and afrormosia veneered laminated seat and back-for domestic use, bonded with a modern waterproof resin: for sea-going use, bonded with resorcinol resin. Comfort features: generous width, accommodating curves.

Write or telephone for full details of this and others in our complete range

Macaulay 2215/7 Tel. 8w4 Clapham Road Union 22 furniture Race





We live in a new age of steel. An age where steel has progressed beyond its basic use in industry, to enter modern life in new, sculptured forms. Instrumental in this exciting development of one of the most fundamental of all raw materials are Norwood Steel Equipment Limited . . . where, today, steel is fashioned into contemporary office and industrial partitioning . . . compact, pleasingly-proportioned office furniture . . . and super-efficient storage systems. Steel is strong. Steel is clean. Steel is aesthetically light and airy. At Norwood Steel Equipment, steel is fashioned to fit neatly into the demands of modern architecture and modern living, by adding new concepts of design and colour.

In this new age in steel, consult Norwood Steel Equipment Limited.

# a new age in STEEL



KSE

create new ideas in steel

### NORWOOD STEEL EQUIPMENT LIMITED

HEAD OFFICE AND FACTORY:

Howard Way, Harlow, Essex (Harlow 25651)

LONDON DISPLAY CENTRE:

149 Borough High Street, London S.E.1 (HOP 5033) and at Birmingham, Manchester and Bristol

Т	o: NORWOOD S	STEEL	EQUIPMENT	LIMITED	
	HOWARD WAY, HARLOW, ESSEX				
	Please send me your publications on				

Steel partitioning Steel office furniture

Steel storage systems

NAME

ADDRESS

AR 6

# A phenomenal success in AMERICA

# MULTI-ROOM AIR CONDITIONING PERSONALLY CONTROLLED IN EVERY ROOM

AIRAD, the unique multi-room air conditioning system, has arrived in Britain. Now, your clients in large multi-room buildings (built or going to be) can personally control the ventilation, temperature and humidity in each individual room. A revolutionary idea? That's putting it mildly. Designed to be used in multiple, every AIRAD unit provides fully-automatic, personally-regulated, four-season air conditioning. It warms in Winter. It cools in Summer. And in Spring and Autumn it gives a choice of either heating or cooling (no other system does). But that's not all. The AIRAD conditioner unobtrusively circulates purified air, extracts excess humidity and deadens outside noises to preserve inside quiet—all under personal automatic control.

Moreover, installation and running costs are surprisingly low. Post the coupon today for illustrated literature—there's a lot to be said for AIRAD personally controlled air conditioning!

AIRAD LIMITED . UNSWORTH STREET . RADCLIFFE . NR. MANCHESTER . ENGLAND

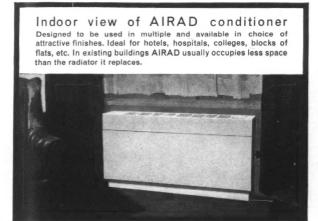
# and now available in BRITAIN!

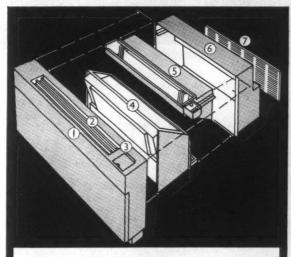
### INSTALLATION

ARAD is designed for built-in through-the-wall installation. In new buildings the Wall Cabinet is put into place at time of construction, and the rest of the unit is installed as the structure nears completion. In existing buildings the Wall Cabinet is placed after the necessary hole has been cut through the wall. AIRAD suits every type of construction. In America this kind of system has been successfully installed in buildings with panel walls  $2\frac{1}{2}$ " thick and fits equally well into 36" masonry walls. AIRAD may be installed in curtain-wall buildings or those with conventional windows.

### POWER FOR HEATING, ETC.

AIRAD uses steam, circulating hot water or electricity for heating. Electricity is used for cooling and all other functions of true air conditioning which AIRAD so cheaply provides.





### Exploded view of AIRAD conditioner

- (1) Room Cabinet front panel snaps off for easy access to Air Filter, Heater Section and Cooling Chassis
- (2) Discharge Grille air to be conditioned enters Room Cabinet near bottom of front panel and returns to room through top Discharge Grille
- (3) Controls consist of 3-position selector switch for off, cool and heat, plus Automatic Thermostat which controls both heating and cooling
- (4) Cooling Chassis containing Compressor, Cooling-Drying Coil, Condenser, 2-Stage Positive-Pressure Ventilation Unit and Air Filter which filters both room and ventilating air
- (5) Heater Section Circulating Fans and Heating Coil which uses steam, circulating hot water or electricity
- (6) Wall Cabinet
- (7) Outdoor Louvre made of anodised aluminium for corrosion resistance

\*AIRAD is made under licence from the Remington Machine Co. USA—producers of personal comfort equipment for 24 years.



PERSONALLY CONTROLLED AIR CONDITIONING

AIRAD	LTD. UNSWORTH ST. RADCLIFFE. NR. MANCHESTER, ENGLAND
I want	to be among the first to get full details of the AIRAL
air con	ditioning system.
Name	(Block Capitals)
Addres	38

CATCH NEXT POST WITH THIS!!

.....

TELEPHONE: RADCLIFFE 2335/2508

TELEGRAMS: TEXAS RADCLIFFE



Stack pipes, soil pipes, rain-water goods, made from 'Corvic' vinyl polymers.



'Welvic' p.v.c. covered window frames.



Polythene film damp and soil proof membranes under concrete.

# PLASTICS IN BUILDING



Lighting fittings made from 'Perspex' and 'Diakon' acrylic materials.



Baths, washbasins, sinks and drainers made from 'Perspex' acrylic sheet.



Concrete shuttering made from 'Flovic' vinyl copolymer foil.

# new developments-new materials



Wall panelling made from 'Darvic' p.v.c. sheet.



Water cisterns, ball floats and syphons made from 'Propathene' polypropylene.



Stressed skin roofs – a future development in plastics.

Visit the I.C.I stand no. C66 Grand Hall, Interplas Exhibition, Olympia, June 21st-July 1st

Be sure you obtain a copy of the I.C.J. book 'Plastics in Building'.



means progress in plastics

P836/A

'Corvic', 'Darvic', 'Diakon,' 'Flovic', 'Perspex', 'Propathene' are regd. trade marks, the property of I.C.I.
IMPERIAL CHEMICAL INDUSTRIES LIMITED · LONDON · S.W.I



# rings the changes!

A flexible range of fine fittings for decorative and display lighting. By ringing the changes on shade shapes in glass, or metal with four different colours (plus black and white) a large array of fittings can be built up, each distinctive to the job in hand. They can be assembled as ceiling fitting, pendants, wall brackets or table lamps.

The Harlequin "at-a-glance" Reference Folder is worth your study. Write for a copy now to:

TROUGHTON & YOUNG

TROUGHTON & YOUNG (Lighting) LTD., The Lighting Centre, 143 Knightsbridge, London, S.W.1 Phone: KENsington 3444. And at Rodney St., Liverpool 1

# See for yourself...

# New Luxol Dense White

GIVES <u>PURE</u> WHITENESS...

GIVES <u>REAL</u> COVER POWER.

AND HAS PROVEN QUALITY



There can be no doubt from its successful reception by painters and decorators everywhere that Luxol Dense White has filled a real need for a pure White Enamel Finish.

The extra density of the paint and its sheer strength of build give an exceptional obliterating power... and the men who know paints and know their trade have been quick to approve and apply its 'no-show-through' opacity. New Luxol Dense White is easy to apply and offers decorators everywhere an immaculate white gloss that puts all ordinary white paints well in the shade. For a lasting brilliance of whiteness new Luxol Dense White is unsurpassed.

White has never covered like this before!



BRITISH PAINTS LIMITED Decorative Division

Portland Road, Newcastle upon Tyne, 2 Northumberland House, 303-306 High Holborn, London, W.C.1 Mersey Paint Works, Wapping, Liverpool

Aberdeen, Belfast, Birmingham, Bristol, Cardiff, Glasgow, Edinburgh, Monchester, Middlesbrough, Norwich, Nottingham, Sheffield, Southampton, and all principal town

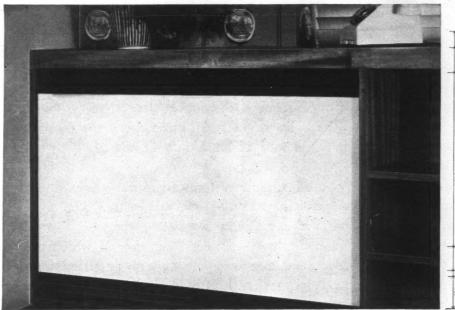


Decorators everywhere approve the new white out of the ordinary

**NEW LUXOL** 

Dense White

# RADIATOR FASCIA PANELLING IN



weyroc

weyroc

weyroc

weyroc

weyroc

weyroc

weyroc

weyroc

beffle

LOCATION: Modern Office Block, Holborn

ARCHITECTS: Drew & Salisbury

**PROBLEM:** To replace, by some practicable, solid material, all-over metal grille fascias which were restricting heat output from radiators. The required material had to ensure maximum heating efficiency, while remaining inert, and be easily and economically decorated.

WHY WEYROC WAS THE ANSWER: In choosing Weyroc for the job, the Architect was influenced by its stable characteristics which make it resistant to heat without shrinking, twisting or warping. Moreover, the quality of the Weyroc surface allowed for simple working and finishing (in this instance, with paint). Trade price of Weyroc (\frac{3}{4}" nominal) is 1/6d. per sq. ft.—subject to the usual standard discounts.

8' x 4' boards of Weyroc were cut to required panel size and hinged to allow access to radiator.

Convection efficiency was achieved by leaving air intake and outlet spaces at bottom and top, and by fitting a curved cove behind the radiator.

# NOTE FROM THE MANUFACTURERS OF WEYROC

Fascia Panelling is only one of many applications of this constructional 'sheet' material. Weyroc is also being used with great success for partitions, roof-cladding, built-in fitments, bath panels, doors, shelving, etc. We shall be glad to supply Architects with a detailed Weyroc specification sheet and board sample, on request to: Dept. AR.19



THE AIRSCREW COMPANY & JICWOOD LIMITED . WEYBRIDGE . SURREY

W.P.S. 91

# a code fo

The trend in lighting today is towards high illumination. High illumination is an excellent thing in itself, but until now it has inevitably been accompanied by excessive glare with consequent discomfort to the eyes. This discomfort glare, caused not only by the light source itself, but also by the fittings, results in the increased light becoming instead of an aid to efficiency, the very reverse, an actual distraction.

Look at the picture. The office is more than adequately lighted, yet the light fittings themselves are not emitting any appreciable glare. The light source is, in fact, unobtrusive. You have never seen lighting like this before!

This is G.E.C. comfort in lighting—a new technique in which the G.E.C. has gone a long way towards removing discomfort glare by using high illumination in conjunction with low brightness fittings of high luminous output sometimes called "dark" fittings because by correct design and use of suitable materials, they actually appear to be dark.

A 40-page publication, F4695, tells you all about "Comfort in Lighting". It is free on request.

# comfort ir

high level illumination without discomfort glare

# comfort...

Only the
Comfort in lighting
range meets all the
recommendations
of the new CODE
issued on April 11th
by the Illuminating
Engineering Society
in every type of
installation.



# lighting

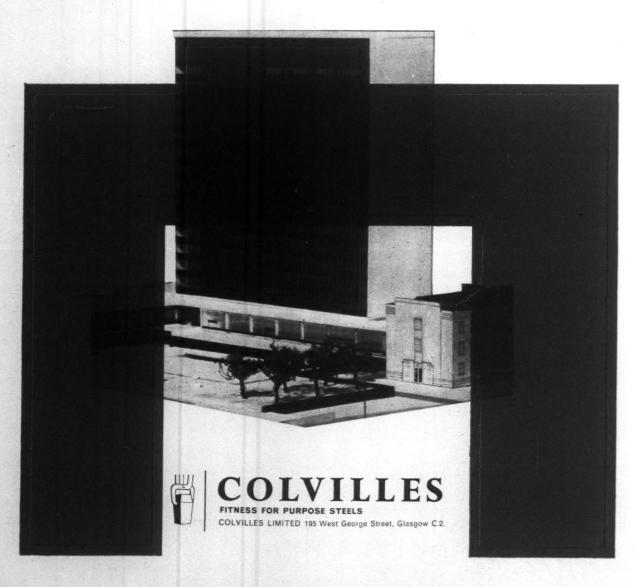
9.E.C.

LIGHTING DIVISION

THE GENERAL ELECTRIC CO. LTD.,
MAGNET HOUSE, KINGSWAY, LONDON, W.C.2

# STEEL AND THE ARCHITECT

COLBOND-60, Colvilles' most recent development in reinforcing bars, is being used extensively in the new County Buildings at Hamilton. This bar is rolled to A.S.T.M. 305 for indentations and has a guaranteed minimum yield of 60,000 lbs. Size range \frac{1}{16}" to \frac{1}{4}". Supplied in long random lengths or cut to length and bent to schedule if required.



# MAY

REGISTERED TRADE NAME

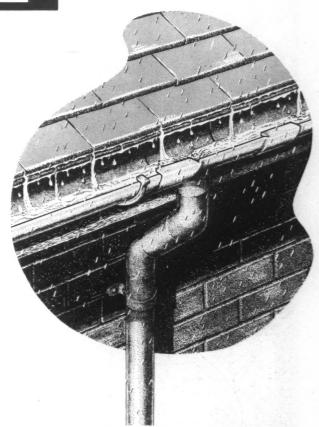
# The New P.V.C. RAINWATER SYSTEM

the most advanced design of rainwater system yet developed

good reasons why you should install or specify RYMWAY

1. RYMWAY is a complete and self-contained system—nothing else is required apart from a few simple tools.

- nothing else is required apart from a few simple tools.
- 2. Made from tough, non-ageing P.V.C. with adequate impact strength to withstand shocks from ladders and normal forms of misuse.
- 3. Extremely light in weight and easily handled.
- 4. Easily and rapidly fixed—the gutter fittings and fascia brackets only require a snap-action to secure the gutter firmly in position—no cementing, drilling or screwing of the fittings. Factory fabricated joint sealers.
- 5. Requires no painting or maintenance.
- 6. Gutters and pipes can be easily cut with a hacksaw—no wastage or preparation of ends.
- 7. An entirely corrosion resistant and leak-proof system.



The RYMWAY P.V.C. Rainwater System provides an inexpensively priced range of rainwater goods which have many advantages over conventional goods at present in use.

It is the result of an extensive period of investigation and testing of the basic requirements of a sound, reliable and easily fixed installation. RYMWAY is manufactured and marketed by three firms already well known as suppliers of quality products to the Building Industry-Yorkshire Imperial Metals Limited, Redland Tiles Limited and P. H. Muntz & Barwell Limitedand represents the most advanced design of rainwater system yet developed, with a full appreciation of the varied requirements of both large and small building contractors.

It is supplied COMPLETE with die-cast aluminium fascia brackets, plastic pipe clips and all fixing screws.

Send for details to:-

YORKSHIRE IMPERIAL METALS LIMITED

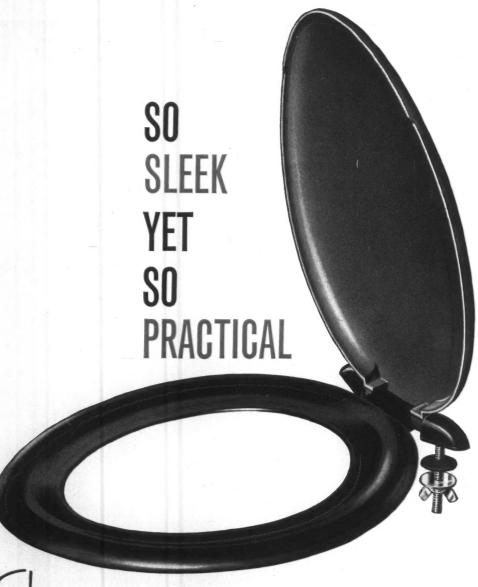
**REDLAND TILES LIMITED** 

P. H. MUNTZ & BARWELL LIMITED

P.O. Box 166, LEEDS. Telephone: Leeds 72222

Castle Gate, REIGATE, Surrey. Telephone: Reigate 4781

Alexandra Works, WEST BROMWICH, Staffs. Telephone: Tipton 1246



# Shires'continental'seat

As a replacement or a new fitment, no other toilet seat in this price range has the advantages offered by Shires 'Continental'.

### THE SEAT

Light, shapely, slim—but virtually unbreakable. Unique bufferless construction is allowed by the supreme strength of the exclusive black material used.

### THE COVER

Stylish, elegant, beautifully designed. Completely overlaps the seat for extra

hygiene. Available in colours to tone with any bathroom scheme: green, primrose, red, turquoise, deep blue, blue, ivory, pink, white and black.

### **FITTING**

Adjustable hinges mean the assembly can be fitted to leading makes of pan without the use of tools.

SHIRES ARE THE LARGEST MANUFACTURERS OF MOULDED FLUSHING CISTERNS IN THE WORLD

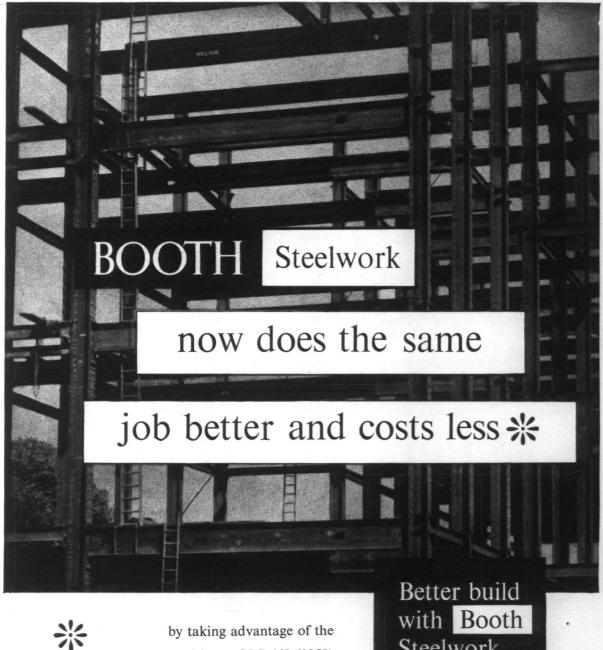
They also make the Uni-Lynx close-coupled suite.

Full details and trade terms from Division D, SHIRES & CO. (LONDON) LIMITED, GUISELEY, YORKS. (also at LONDON & BIRMINGHAM); Shires (Ireland) Limited, Dublin.

of Guiseley

Star your convenience

Star



new provisions of BS-449 (1959) and its amendments, worthwhile economies can be effected.

with Booth
Steelwork
and cut the
cost of your
structure.

JOHN BOOTH & SONS (BOLTON) LTD. HULTON STEELWORKS, BOLTON, Telephone BOLTON 61191 London: 26 VICTORIA STREET, WESTMINSTER, S.W.1. Telephone ABBey 7162



### CARRON COMPANY · CARRON · FALKIRK · SCOTLAND



Telephone: Falkirk 35

LONDON: 15 Upper Thames Street, E.C.4.

LIVERPOOL: 22-26 Redcross Street, 1.

GLASGOW: 125 Buchanan Street, C.1.

NEWCASTLE UPON TYNE: 33 Bath Lane.

Telephone: CENtral 7581

Telephone: CENtral 1945-6

Telephone: CENtral 8226

Telephone: 26940

# **ELCO PLASTICS** LTD.

for illuminated ceilings

"Elcoplas" louvres installed at **BERKERTEX** 

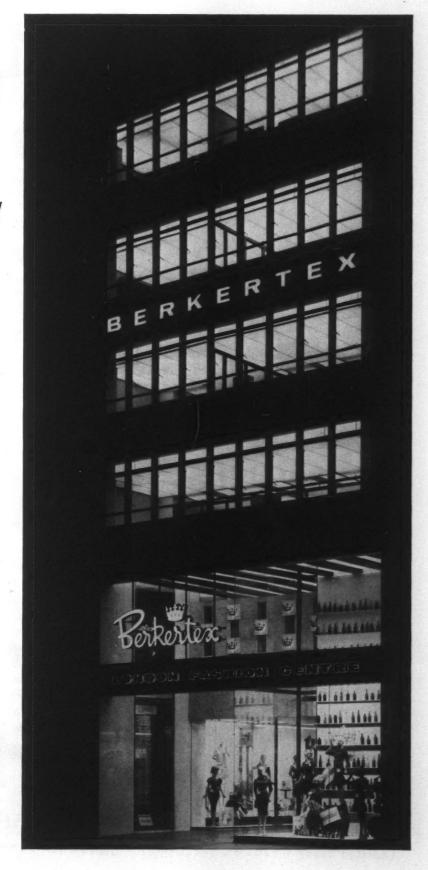
Berkertex London Fashion Centre, 309 Oxford Street, London, W.I

Shop: The late Mr. Bronek Katz, M.B.E., Dipl. Ing. Arch., F.S.I.A., of Bronek Katz and R. Vaughan.

**ELCO PLASTICS LIMITED** 

Desborough Park Road, High Wycombe, Bucks.

Tele : 4111



# escalators





We plan Escalators to give equal distribution of customers on all floors



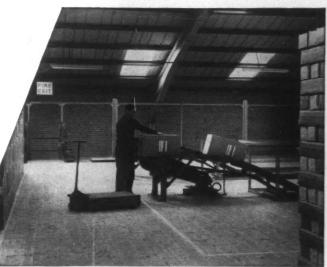
# J& E Hall

DARTFORD · KENT

London Office: 60 Rochester Row, S.W.1 Tel: VICtoria 0354
Offices and Works throughout Great Britain and Overseas.

AP 321

LEVEL
STORAGE
IN A SINGLE STOREY
BUILDING



The open plan of the storage platform.



# **KEE KLAMP**

STORAGE PLATFORMS

gain an extra 24,000 sq. ft. floor area for

# **MORPHY-RICHARDS**

Ground floor plan facilitates mechanical handling.

available.

This new Morphy-Richards building could contain over half a football pitch! Within its 4 walls, a Kee Klamp storage platform 233 ft. × 105 ft. and 12 ft. 5 in. high, completely free-standing, provides 24,000 sq. ft of floor area at a loading of 150 lb. per sq. ft. with free access to the equivalent storage area beneath. Planned and erected by "Kee Klamp" engineers, it is another example of "Kee Klamp" storage know-how which is so much in demand today.

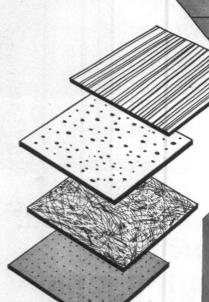
Free access to ground floor stores.

# GEO. H. GASCOIGNE CO. LTD.

579 GASCOIGNE HOUSE, READING, BERKS. Telephone: READING 54417 (3 lines)

# FIBERGLAS

**NOISE CONTROL MATERIALS** 



For more details on FIBERGLAS Acoustical Materials — and special suspension systems designed for them — get in touch with the

CHEMICALS TRADING COMPANY, LTD.

Cree House, 18-20 Creechurch Lane, E.C.3

FIBERGLAS

makes good things better . . . makes new things possible

\*Trademarks of Owens-Corning Fiberglas Corporation

...solve all noise control problems — provide beautiful ceilings with added fire-safety

Whatever your noise control problem may be — in homes, institutions, business and industrial structures — you will find the solution in the complete line of FIBERGLAS\* Acoustical Materials. What's more, FIBERGLAS Acoustical Materials provide beauty, color and contribute to fire safety!

A unique combination of outstanding advantages!

**Noise Reduction** — FIBERGLAS Acoustical Materials soak up as much as 90% of sound striking them.

**Fire Safety** — Fiberglas Acoustical Materials are rated as non-combustible.

**Beauty** — Fiberglas Acoustical Materials are available in a variety of attractive finishes to enhance the most elegant interiors.

**Stability** — FIBERGLAS Acoustical Materials, made of fine glass fibers, will not contract, expand, warp or buckle.

**Economy** — FIBERGLAS Acoustical Materials are light in weight, easy to handle and install — and because of their *thermal values* they provide additional insulation against cold in winter — heat in summer.

**FIBERGLAS** Noise Control Products

Textured, Perforated, Random Perforated, Sonofaced\*, Frescor\* and Stria\* Acoustical Tile...Textured, Sonofaced, Frescor and Stria Ceiling Board...Noise-Stop\* Baffles...Acoustical Form Board.



# HILLS

SCHOOLS CONSTRUCTION SYSTEM

HILLS (WEST BROMWICH) LTD., ALBION ROAD, WEST BROMWICH, STAFFS. Branches at Manchester, Bristol, London, Newcastle-on-Tyne, Glasgow.

# THE LINCOLN TREASURY

Architect:

Louis Osman, B.A.(Arch.), F.R.I.B.A.

illustrated editorially on pages 411—414

Entrance Gates to the Treasury executed in wrought iron and stainless steel

Central Display Case in bronze and glass





Craftsmanship
in
ferrous and non-ferrous
Metals

# **STONER & SAUNDERS**

LIMITED

20/46, WOODFIELD ROAD, PADDINGTON, W.9

Telephone: CUNningham 3321



# When you're in the market for a better building

The building being portered in Billingsgate is concerned with loaves rather than fishes. It's a model of the new Bakers Hall, being built by Wates in nearby Harp Lane, and six loaves of bread is the annual rent which the Worshipful Company of Bakers will pay for it. Designed by Trehearne & Norman, Preston & Partners, this is the fourth Bakers Hall on this site and the first new building in the Tower Hill development scheme. W. Newcome Wright is the architect for the Bakers Company portion of the building, which comprises livery hall, courtroom, lounge and offices, while the upper seven floors which comprises livery hall, courtroom, lounge and offices, while the upper seven floors will provide 23,600 square feet of lettable space. If you're in the market for a better in a shorter time building, better get Wates to build it; for office accommodation in the City, contact Wates Development Division, 4/5 Copthall Buildings, E.C.2. (NATional 8755).

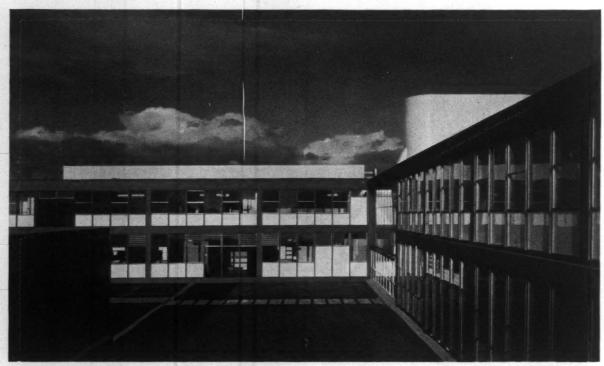


at a lower cost

WATES LIMITED, 1260 London Road, Norbury, London, S.W.16.

POLlards 5000

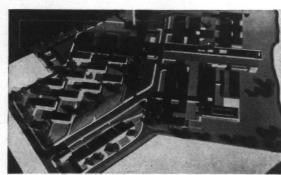
# ... with a clear view in mind 'HOLLOSEAL' dual glazed units were specified



Architects: Powell & Moya Photos: H. de Burgh Galway

This new conception of modern planning and design is a perfect example in the full use of 'HOLLOSEAL' Dual Glazed Units.

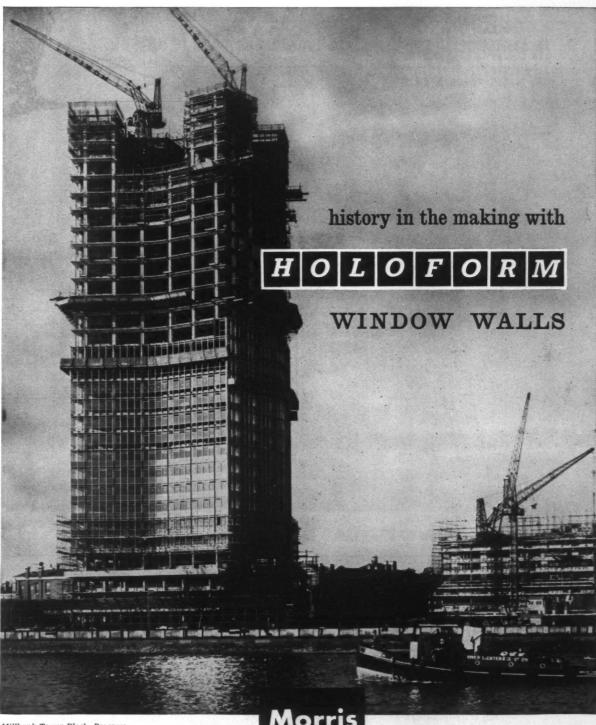
The Princess Margaret Hospital, Swindon, illustrated, ably portrays all the virtues necessary for quietness, draught-free warmth or coolness and perfect natural light, without condensation, even during the worst of winter days. 'HOLLOSEAL' the finest thermal dual glazed insulated unit. First choice of Architects, Public Authorities, Commercial, Industrial and Estate Developers.







Telephone: CLIssold 1121 (P.B.X.)



Millbank Tower Block, Progress. Architects: Ronald Ward & Partners.

Morris Singer Stainless Steel Curtain Wall Units have been fixed and glazed, virtually complete, at the time the photograph was taken, up to the 16th Floor, whilst erection of the structure is still proceeding above, thus providing weatherproof areas enabling other trades to proceed under ideal conditions.

proceed under ideal conditions.

If you have similar problems, our Holoform booklet will provide much useful detailed information on this and other specially-designed cladding in Stainless Steel, Bronze and Mild Steel.

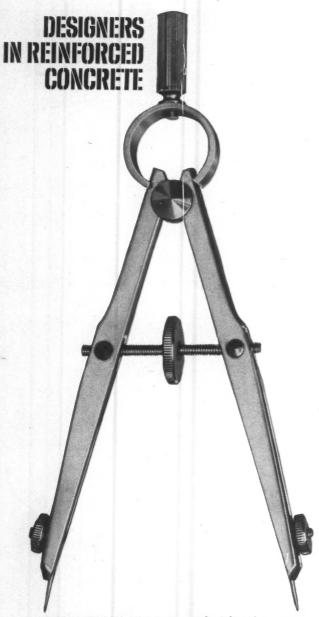
Write or telephone Abbey 4701 for a copy.

# Morris Singer

SYSTEMS OF WINDOW WALLING AND CLADDING

### THE MORRIS SINGER COMPANY LIMITED

Head Office: Ferry Lane Works, Forest Road, London, E.I7. Tel: LARkswood 1055 Hope House, Gt. Peter Street, Westminster, London, S.W.1. Tel: ABBey 4701



Richard Hill Ltd. maintain teams of reinforced concrete engineers throughout the country—fully qualified to tackle schemes for any type of reinforced concrete structure. They will also give estimates for the preparation of complete working drawings and calculations, and for the supply of reinforcements. There is no bias towards any proprietary materials or methods—each job is given a thorough investigation in the light of up-to-date design practice.

A site investigation service is also available.

A site investigation service is also available.

Any of the following branch offices will be pleased to send a technical representative to give you further information.

MIDDLESBROUGH—TEL: MIDDLESBROUGH 46092 LONDON—TEL: WHITEHALL 3100 MANCHESTER—TEL: SALE 8277:8 BIRMINGHAM—TEL: MIDLAND 5625 GLASGOW—TEL: GLASGOW CENTRAL 2179

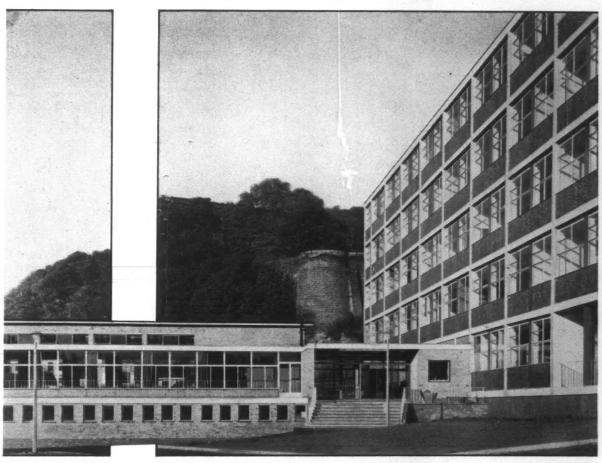
### RICHARD HILL LIMITED

7 CLEVELAND ROW, LONDON S.W.1 Tel: WHItehall 3100 A MEMBER OF THE FIRTH CLEVELAND GROUP

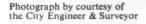


CRC 35 MX

# "Alumell" patent glazing and...



# ... metal windows





for the People's College of Further Education, Nottingham to the instructions of the City Engineer & Surveyor, R. M. Finch, Esq., O.B.E., M.I.C.E.

Chief Architect, J. R. Sketchley, A.R.I.B.A., Dip. T.P., A.M.T.P.I.

Architect-in-charge, D. R. M. Mason, Dip. Arch. (Leeds), A.R.I.B.A.

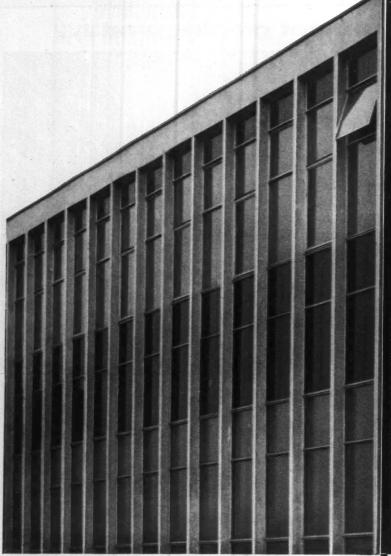
by

# MELLOWES & CO.LTD.

SHEFFIELD

LONDON

OLDHAM



and the architecture of today\*

St. Mary's College, Leeds: G. Allan Burnett, A.R.I.B.A., A.M.I. Struct. E., Dip. Arch. (Leeds)

VITROSLAB, dark blue in colour with a smooth external face, blends with the concrete mullions on this project, and plays a considerable part in the creation of a dignified building. Thermal insulation, lightness, and speed of erection were also reasons for the specification of VITROSLAB.

\* and tomorrow!



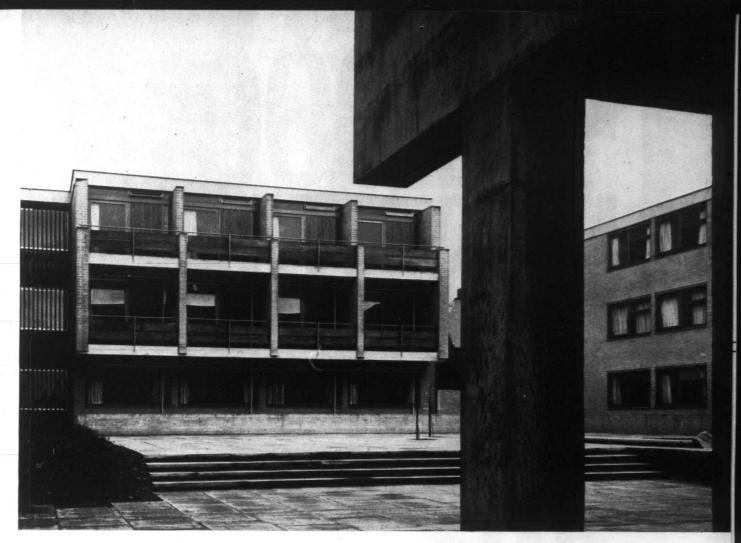
The PLYGLASS range of double glazing units is the most comprehensive in the world.

PLYGLASS LIMITED, EDINBURGH PLACE, TEMPLE FIELDS, HARLOW, ESSEX.

Telephone: Harlow 24271. Cables: Plylux Harlow:

@8287





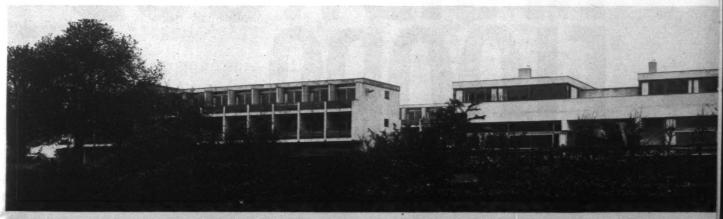
# University of Leicester, Women's Hall of Residence, Knighton

Architect: Professor Sir Leslie Martin, M.A., Ph.D., F.R.I.B.A., in association with Trevor Dannatt, F.R.I.B.A.

All the timber framed windows and external doors and the internal glazed screens and doors in the residential blocks were manufactured by

# EAST & SON LTD Berkhamsted, Herts

Makers of the 'Prospect' range of Windows, Doors & Curtain Walling in Timber



# 450.00 HOSPITAL

BEDS HARDWOOD FLANRS.



Beds—row upon row, in ward after ward. Standing foursquare, or being moved, pushed, wheeled—on durable hardwood floors. In miles of busy corridors too, floor surfaces must carry the never-ceasing traffic of hospital activity. Durable, resilient hardwood floors have proved to be the best-equipped flooring to withstand this arduous wear.

Quiet floors, comfortable floors to walk on, a pleasure to the eye, easily maintained... Permanent floors that repay their cost by giving years and years of faithful service. For hospitals, specify hardwood floors always.

They last longer. They need the minimum of nursing through the years to come.











TAKE STEPS
TO FIND OUT MORE
ABOUT HARDWOOD FLOORS
THEY'RE CHEAPER
IN THE LONG RUN

The Hardwood Flooring Manufacturers'
Association or the Timber Development
Association will be glad to supply you
with design data and full information
on the characteristics of the many
hardwood species now available for floors
to meet all conditions of service.
Write to The Hardwood Flooring
Manufacturer's Association,
68/70 Queen Street, London, EC4



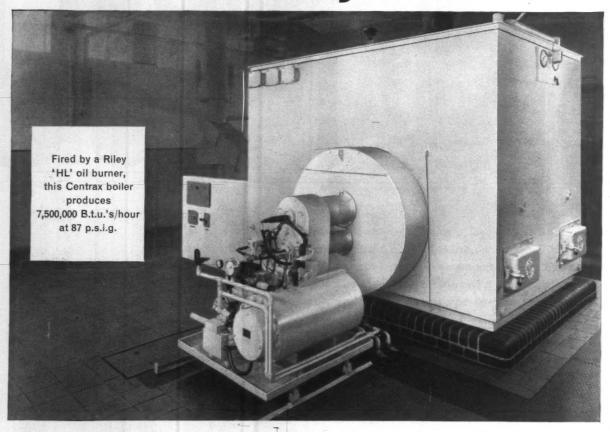






# CENTRAX

# recommend Riley oil burners



A high-efficiency boiler needs highly efficient firing. For that reason, Centrax Limited recommend Riley oil burners for their Gustavsbergs steam and hot water boilers. The clean, intensely hot flame produced by Riley equipment enables full use to be made of the advanced features of Centrax-Gustavsbergs design.

# RILEY

### COMBUSTION EQUIPMENT

The 'HL' high/low/off oil burner illustrated, for capacities over 100lb/hr, has large and small air registers, each with its own atomiser, giving optimum efficiency whether one or both are in operation. Other Riley oil burners are available with capacities from 5lb to 9,000lb/hr. Riley also manufacture a wide range of chain grate and underfeed stokers meeting almost every firing application. Please write for full details to Riley (IC) Products Limited, 19 Woburn Place, London, W.C.1., telephone TERminus 2622.

# GENTRAX

GUSTAVSBERGS

### HIGH EFFICIENCY BOILERS

Of welded steel construction and can be fired by oil burner or automatic stoker. Advanced features of design result in a compact boiler unrivalled for ease of maintenance, high efficiency, economy, reliability and long life. They conform to A.O.T.C. and British Standard requirements and are available in 20 sizes with outputs up to 12 million B.t.u./hr at 100 p.s.i.g. Full information is available from the London Sales Office of Centrax Limited, 248-250 Tottenham Court Road, London, W.I., telephone LANgham 2364-5.

# RILEY (IC) PRODUCTS LIMITED

OIL BURNERS . COMPLETE OIL FIRING INSTALLATIONS . UNDERFEED AND CHAIN GRATE STOKERS

TGA RO9

# the larger they come the better

with modernfold expanding walls & doors



Our illustration shows a large Modernfold installation—they come larger—they come smaller. No matter what the space division problem there is always a Modernfold. Luxuriously covered in PVC leathercloth in a wide choice of colours, custom made for each specific installation, Modernfold are draughtproof, quiet and easy of operation, need no floor track and are light to handle.

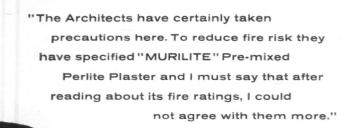
If noise is a problem, the new SOUNDMASTER will provide the answer-specially designed for use where quiet working conditions are required. The effectiveness of SOUNDMASTER has been proved by conclusive tests, details of which are available on application.

Whatever your problem in room division we will gladly advise you. Write today for full details

HOME FITTINGS (GT. BRITAIN) LTD

(Dept AR5) Victoria Works, Hill Top, West Bromwich, Staffs. Telephone Wednesbury 0761

Remember-Modernfold always fill the gap-completely



Gypsum Plaster is one of the finest fire resisting materials known to the Building Industry, but when Perlite is incorporated as an aggregate, its fire resistance is greatly increased.

In the construction of fire resistant ceilings and partitions and the encasement of steel stanchions and girders, the protection afforded by "MURILITE" is of an exceptionally high order and can be achieved simply and economically by normal plastering practice.

If you have any problem concerning fire protection, we shall be only too pleased to let you have details of the fire ratings obtained on various types of structure protected by this Pre-mixed Perlite Plaster.

# CAFFERATA & CO. LTD.

Telephone: NEWARK 2060.

Telegrams: 'CAFFERATA, NEWARK'

London Sales Office: Ferguson House, Marylebone Road, LONDON, N.W.1 Tel: HUNter 4011/8



# **News from Hull**

# Luxury Flats and Offices in a Nash Crescent

# 'STANDARD' EQUIPMENT USED EXTENSIVELY

architects:—
FITZROY ROBINSON & PARTNERS

main contractors:—
TERSONS LIMITED

plumbing sub-contractors:—
ELLIS (KENSINGTON) LIMITED

A new block of luxury flats and offices will shortly be completed in Park Crescent, W.1—the lovely crescent near Regent's Park, famous for its fine Nash houses. The west side of the crescent was heavily damaged by enemy bombing during the war, and to preserve the character of the crescent the frontage has been rebuilt exactly to the original Nash design.

The block, which has been developed by Portland Estates Ltd., provides over 55,500 square feet of office space. There are also on the site 92 luxury flats of one, two, or three rooms, kitchen and bathroom.

In each bathroom there is an elegantly styled 'Standard' Lowline bath finished with high quality porcelain enamel. The Lowline has three possible tap positions and hand grips are optional. The wash basin is the 'Standard' Kingston mounted on chromium plated legs (although it can be wall hung or



fixed on a pedestal) made from durable vitreous china. The 'Standard' Kingston double trap siphonic low level closet suite, also of vitreous china, completes the sanitary fittings in these bathrooms. 'Standard' equipment has also been used extensively in the luxurious offices. Devonian wash basins, Vitural slab urinals and Sano wash down closet suites all made from vitreous china have been used in the washrooms.

using 'Standard' equipment in offices and domestic dwellings are obvious. Firstly, the equipment is well designed. Both the Lowline bath and the Kingston range are outstanding examples of all that is best in modern bathroom equipment. The Vitural slab urinal is a great advance in existing urinal design and is the first full length slab to be made from vitreous china.

The advantages to the planner of

Secondly, 'Standard' items are made

from vitreous china. This is more hygienic than ordinary ware—as it is non-absorbent, it is impossible for germs to lodge and breed in it.

Thirdly, 'Standard' equipment is extremely durable. It keeps its good looks for many years and replacement is rare so that it is more economical in the long term than other equipment. For these reasons 'Standard' sanitary fittings are being specified by architects for more and more hotels, public buildings, houses, factories, offices and schools, as each month passes.



The Lowline bath



The Kingston wash basin



The Kingston low level closet suite



The Vitural slab urinal



The Sano wash down closet suite

# THE SILENT SHIP



S.S. "Canberra", 45,000 tons, built by Harland & Wolff, Ltd.

For the "CANBERRA", the world's most modern liner, high standards of Acoustic Engineering were demanded—and were met.

Because the engine room is located aft, a great reduction in background noise has been achieved throughout the passenger quarters of the ship. In consequence, normal cabin-to-cabin noise is much more audible and its elimination, therefore, became essential.

Specially designed ISOLATED SOUND RESISTANT CABIN DOORS AND BULKHEADS were the answer. Their design and construction, with other specialist acoustic work, was entrusted to Sound Control.

To the Architect and to Industry we offer, on land or sea, an equally efficient solution to any sound problem.

# SOUND CONTROL LIMITED

### ACOUSTIC ENGINEERS TO INDUSTRY

A member of the Hall-Thermotank Group

Colneside Works, West Drayton, Middlesex. West Drayton 3685 (5 lines) Scottish Office: I50 Helen Street, Glasgow, S.W.I. GOVan 2444



Architects: City of Coventry Architectural & Planning Department Fabricators: H. M. Martyn & Company Ltd., Cheltenham

# Coventry's architects choose

# 'SILVER FOX' stainless steel

'Silver Fox' 302 stainless steel sheet, diamond rigidised and electropolished, was used for the fascia and pilasters of the City of Coventry Architectural & Planning Department offices in Earl Street, Coventry

Stainless steel is attractive in appearance, easy to maintain, and has a high resistance to corrosion.

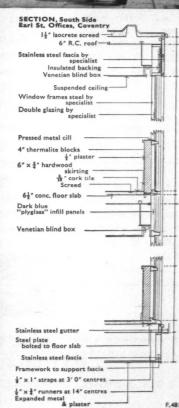
# 'SILVER FOX' stainless steel

# samuel fox

STOCKSBRIDGE . SHEFFIELD

A subsidiary of The United Steel Companies Limited





# \*What is special about SYNTHANITE

# THE NEW FLOATING SCREED?

### \*THESE 10 FEATURES!

• Laid on waxed kraft paper or bitumen, making hacking or grouting of base unnecessary • No adhesion to sub-floor—thus movement is not transmitted • Shrinkage negligible means little or no cracking • 600 sq. yds. can safely be laid without expansion joints • Great stability and flexural strength • Dries and hardens 50% more quickly than sand and cement • Ideal for acoustic floating floors • Permits the use of directly embedded cables for electrical underfloor heating • Recommended surface for plastic tiles, rubber, linoleum, wood blocks etc • Speedy laying.

### CHOSEN FOR:

IMPERIAL CHEMICAL INDUSTRIES LTD-installation at Mond House.

MIDLANDS ELECTRICITY BOARD—installations at Birmingham, Gloucester, Redditch, Stafford and Cheltenham.

LANCHESTER COLLEGE-by City Architect and Planning Officer, Coventry.

CHOSEN BY BUILDERS & ARCHITECTS EVERYWHERE!



For details of laying facilities and further information contact:

SEMTEX LIMITED · SEMTEX HOUSE · 19/20 BERNERS STREET · LONDON W.1 · Telephone: LANgham 0401

## THE **DUNDEE LINOLEUM** COMPANY LIMITED

## **NEW SERVICES OFFERS ARCHITECTS**

**TECHNICAL ADVISORY** SERVICE

On call for architects is a team of that would suit your needs best, or specialists trained by Dundee who are always ready to help you if you have any problems about flooring, the laying of linoleum under varying conditions, the quality of linoleum

any other queries you may have in relation to the use of linoleum. Just contact Dundee whenever a problem arises, and one of these men will be on their way to see you.

## THE LINOLEUM CENTRE

At the new Linoleum Centre in Little Britain E.C.1, you will find ideas for the use of Linoleum, recommended methods of installation, general information about the service and maintenance of linoleum. The Centre has been opened in co-operation with the leading manufacturers of



sub-floorings and all materials used in conjunction with Linoleum. The information is presented visually through photographs, models and displays-but technical staff are always present to discuss particular problems. Why not call in at the Centre yourself-you're bound to find it interesting.



#### NEW RANGE OF LINOLEUM COLOURS **DESIGNED SPECIALLY** FOR ARCHITECTS

Dundee have launched a new Contract quality range of heavy duty inlaid and plain linoleum in colours

specially designed for the architect and designer to use in both modern and traditional decorative schemes. Colours were specially selected by Michael Inchbald, M.S.I.A., F.R.S.A., M.B.A.D.A., noted Colourist and Interior Designer.

THE

NOLEUM COMPANY LIMITED

DUNDEE HOUSE, 39/44, LITTLE BRITAIN, LONDON, E.C.I **TEL: MONARCH 0477** 

## Eight new books on ARCHITECTURE

#### MY WORK BY LE CORBUSIER

Written, designed and supervised by Le Corbusier, this book surveys the great architect's development from his early days to the completion of his latest building. Drawings, used to amplify Le Corbusier's ideas when working, are here used to reinforce his explanatory text. He explains and illustrates the principles governing his work, and his contention that architecture must be integrated with other art forms is reinforced by a wide selection of photographs of great buildings, paintings and sculptures. Size  $11\frac{1}{4} \times 8\frac{3}{4}$  ins. 328 pages. Illustrated throughout. 84s. net, postage 2s. 3d.

## New Japanese Architecture

Western opinion seems to have built up an image of modern Japanese architecture as something spare, elegant, informal. Dr Kultermann's book shows how different the work of leading Japanese architects has turned out to be. It is an architecture that is not afraid of mass and solidity; not afraid to exploit the gross material qualities of wood, stone and concrete; not afraid of bold plastic forms; not afraid to mate advanced technology with hallowed traditionalism. All these qualities are brought out in dramatic photographs, backed by analytical texts and biographies of some two dozen leading architects.

Size 11½×8¾ ins. 212 pages. 180 half-tone illustrations. 63s. net.

## Theory and Design in the First Machine Age REYNER BANHAM

In the first thirty years of this century, architects made a tremendous effort to adapt their art, and to create a new climate of ideas. Dr Banham's subject covers theoretical writings, buildings, projects, industrial designs, paintings and sculptures. He shows how one unifying theme finally emerges: the architecture of the International Style. Into its growth went many designs, which the author illustrates and analyses; many publications, from the scholarly to the scandalous, from which he quotes extensively, showing the relationship between theories, theorists and products. Size  $8\frac{3}{4} \times 5\frac{5}{8}$  ins. 340 pages, over 150 half-tone and line illustrations. 45s. net, postage 1s. 9d.

## Design and Detail of the Space between Buildings ELISABETH BEAZLEY

Few good examples of paving, walling and fencing are being built to-day. One reason for their rarity may be that the available information on materials and details is now widely scattered, and much time is wasted in long searches. This handbook sets out to collect, from all sources, all information; and to assess the character, availability and wearing qualities of materials, the relative merits of constructional methods, and to help the planner avoid incongruities of detail.

Size  $10 \times 7\frac{1}{2}$  ins. 230 pages. 130 half-tone and 85 line illustrations. 42s. net.

#### Antoni Gaudi JOSEP LLUIS SERT & JAMES J. SWEENEY

For too long the great Spanish architect Antoni Gaudi has been regarded merely as an eccentric, and the significance of his contribution to architecture has been misunderstood. The authors trace Gaudi's life and work from his days as a student to his death in 1926. The picture emerges of a wholly sincere architect-builder who lived only for his work; we are reminded of Gaudi's constant reference to nature, his preoccupation with structural principles, his habit of making models which showed him what stresses his buildings would have to bear. Photographs, some in colour, and detail drawings, show how richly Gaudi's work deserves attention. Size  $11\frac{1}{4} \times 8\frac{3}{4}$  ins. 192 pages. 184 half-tone illustrations, 13 in full colour. 73s. 6d. net.

## The Landscape of Roads SYLVIA CROWE

In the next three years £230 million will be spent on British roads. This book clearly and forcefully demonstrates the disastrous effect on the landscape when roads are treated purely as an engineering problem. Text, drawings and photographs together show how the skills of a combined team of experts can produce roads which fit the landscape, are far pleasanter to use and do not necessarily cost any more to build.

Size  $9 \times 5\frac{3}{4}$  ins. 70 half-tone illustrations, 18 drawings. 18s. 6d. net, postage 1s.

## Lettering on Buildings

This is the first book to deal with lettering as applied to all kinds of buildings. The author is an internationally acknowledged authority. She first examines and illustrates the history and development of letter forms and then outlines a new way of looking at problems and possibilities. Her approach is illustrated by many examples of lettering  $in\ situ$ ; and she thus demonstrates how present-day architects and designers can tackle the task of integrating lettering with all kinds of buildings. Size  $9\times5\frac{3}{4}$  ins. 192 pages with 270 half-tone and line illustrations, 25s. net, postage 1s. 2d.

#### Architects' Working Details Volume VII EDITORS: D.A.C.A. BOYNE & LANCE WRIGHT, A.R.I.B.A.

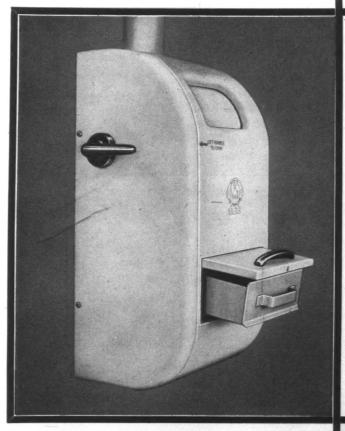
This seventh volume returns to English examples. The series aims firstly to provide architects and students with easily accessible solutions to everyday design problems, and secondly to record the latest stages reached in the study of these problems, thus providing a starting point from which architects can develop their own improvements. Each detail is illustrated by a large photograph facing the relevant working drawing. Size  $12 \times 8\frac{3}{4}$  ins. 160 pages. 148 half-tone and line illustrations. 25s. net, postage 1s. 9d.

The Architectural Press, 9-13 Queen Anne's Gate, London, S.W.1

# It's the FAN that makes Wandsworth the first name in Incinerators



Right: Flush-mounted BUNNIE Below left: Standard Surface mounted BUNNIE



THE WANDSWORTH ELECTRICAL MANUFACTURING CO. LTD.
(DEPT. AR8) ALBERT DRIVE, SHEERWATER, WOKING, SURREY.
TELEPHONE: WOKING 3506

FOR USE IN HOSPITALS, SCHOOLS, FACTORIES, NURSES HOMES, OFFICES, RESTAURANTS, ETC.

Exclusive Wandsworth built-in extractor fan on the 'Bunnie' incinerator entirely eliminates unpleasant odours due to smoke or fumes. By means of a simple relay system, several machines may use a common flue without risk of feedback—even when access doors are open.

● Completely hygienic ● Automatic operation ● Big capacity—100-150 staff
● Surface or flush wall mounting (Pedestal model also available—details on request).
● Residual ash deposited in ash drawer for later disposal ● Easy installation ● Minimum maintenance ● Long service life
● Outer case always remains cool ● Consumption 800 watts ● Available for A.C. or D.C. ● 12 months' guarantee

All British made by Wandsworth, one of the most famous and experienced names in the electrical industry.

Technical advisory service available write or phone for new Incinerator Booklet.



## on really big filing schemes

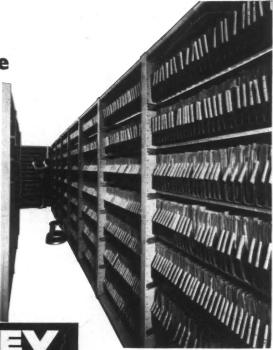
LIVERPOOL CHOOSE RAILEX . .

to solve the problem of fitting huge numbers of files in the smallest possible space, giving maximum efficiency with perfect visibility of all titles and quick easy handling of papers

. . . . LIVERPOOL CHOOSE RAILEX.

RAILEX—the originators of lateral filing and still the best.

SAVE TIME AND SPACE WITH



A section of the vast filing room of the LIVERPOOL CORPORATION HOUSING DEPT.

Over fifty years in Filing FRANK WILSON (FILING) LTD.

ATERAL FILING

CROSS STREET, SOUTHPORT, LANCS. Telephone: Southport 57192

CITY WALL HOUSE, 84-90 CHISWELL STREET, LONDON, E.C.I. Telephone: MONarch 8907 Also at GLASGOW & BIRMINGHAM

A
PLEASING FACE
ON AN
'ENGINEERING' BODY
Unrivalled for all load-bearing purposes.
Sandfaced Facings, one of the famous range of
ACCRINGTON "NORI"
BRICKS
SAMPLES ON REQUEST

THE ACCRINGTON BRICK & TILE CO. LTD., ACCRINGTON, LANCS. 'PHONE: ACCRINGTON 2684
Southern Representative: L. G. Rogers, Oak Lea, Main Road, Westerham Hill, Kent. Telephone No.: Biggin Hill 0538

## TEELPLAT

TOUGHENED GLASS DOORS AND ASSEMBLIES

GLASS D CANBERRA

CANBERRA

More than 120 'STEELPLAS'

TOUGHENED LICE

and association of the world

and association of the wo ELPLATE'LE PORTE AL STEELPLATE' TOUGHT VED GLASS DOORS AND types of toughened glass can

The Care the strain of the s ASSEMBLIES, were manufactured in London

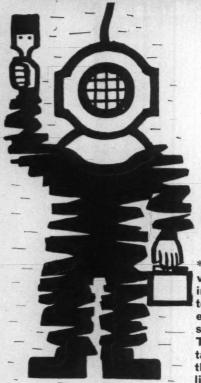


DAMEN .

THE GLASS WORKS, STAMFORD ROAD, LONDON, N.I . Telephone: CLIssold 1121 (PBX)

AGENTS IN FINLAND, GIBRALTAR, NIGERIA, GHANA, RHODESIA, THAILAND, HALAYA, SINGAPORE, HONG KONG ETC.





MORE
RUBBER—
DOES A
BETTER
JOB!



\* Rubber content is vital to waterproofing agents. It determines the life and efficiency of the sealing job. SYNTHAPRUFE contains more rubber than any other liquid waterproofer.

- \* has extra flexibility, is unaffected by moisture, humidity and temperature change
- \* spreads easily, sets rapidly-no skilled labour required
- \* brushes on COLD, forms completely dampproof film with powerful elastic bond
- \* provides vertical OR horizontal damp courses
- \* tried, tested and approved for over 25 years

A unique combination of properties makes liquid SYNTHAPRUFE ideal for—treating interior and exterior damp walls, waterproofing floors and roofs of all materials—including concrete, asbestos, asphalt, felt, lead, zinc, etc.

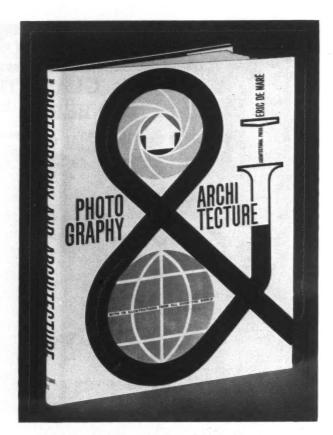
Fixing wood block floors, cork slabs, wallboards, providing key for plaster finish on old painted brick and glazed tile walls.

To NCB By-Products, Docks, Cardiff Please send leaflet on Synthaprufe to	For all practical purposes— SYNTHAPRUF
NAME	Waterproofer and adhesive
FIRM	seals better!
ADDRESS	A National Coal Board By-Product

#### NATIONAL COAL BOARD BY-PRODUCTS

DOCKS, CARDIFF, Tel. 31011

\* 'Synthaprufe' is a Registered Trade Mark



## Photography & Architecture ERIC de MARÉ

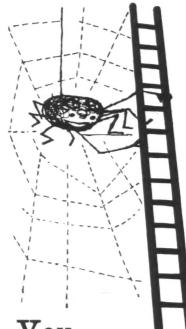
THIS BOOK is by an architect who has become a professional writer and photographer. It reveals simply the technical tricks of the trade and shows how people, using their cameras, may learn to understand, love and enjoy architecture in a direct way without having to carry a burden of passionless academicism.

The book is for the amateur who wants to know more about a fascinating branch of photography; for the architect who wants to learn to make records for use or fine pictures for pleasure; for anyone who likes to possess a book of beautiful photographs from all over the world.

The pictures have been selected and arranged not merely as first-class records of buildings, made by the world's masters of photography, but as photographs striking in themselves, which reveal the visual kinship-between photography and architecture, by expressing the sensually pleasing elements of texture contrast, rhythm, space relationship, scale, and monumentality—especially through the selected close shot. Here are townscape, wallscape, floorscape, reflections, the contributions of rain and snow, the drama of perspective and depth of field, light in all its strange and evocative moods, the viewpoint of bird or worm, and the accidental beauties of squalor, decay or of the merely commonplace.

Size:  $11 \times 8\frac{1}{2}$  in. 208 pages: 109 of photographs. 50s. net, postage 2s. 3d.

The Architectural Press, 9-13 Queen Anne's Gate, S.W.1. U.S. edition; Praeger, New York.



AS THE SPIDER SAID TO BRUCE...

## You need a

## RAMSAY

## ladder!

Aluminium or wood . . . single or extending . . . loftladder or trestle . . . always insist on the RAMSAY stamp on every ladder you buy. Genuine Ramsay ladders have many exclusive features for easy operation and added safety, yet they cost no more than ordinary ladders. With over 1,000 always in stock, and a range to suit every purpose, the Ramsay ladder for your job is available NOW with immediate delivery. Write for catalogues and price lists.



RAMSAY & SONS (FORFAR) LTD. WORKS & HEAD OFFICE: FORFAR, ANGUS, SCOTLAND Tel: FORFAR 855

LASGOW DEPOT: British Rallways Mineral Yard, Kelvinbridge, outh Woodside Road, Glasgow, C.4. Telephone: Western 3083 DINBURGH DEPOT: British Railways Mineral Yard, Haymarket, dinburgh 12. Telephone: Donaldson 1022.

EEDS DEPOT: British Railways Goods Yard, Whitehall Road, eds, 12. Telephone: Leeds 32903.

ONDON DEPOT: Park Royal Goods Yard, Coronation Road, andon, N.W.10. Telephone: Elgar 4141.

ONDON AND EXPORT OFFICE: Excel House, Whitcomb Street, ondon, W.C.2. Telephone: Trafalgar 6745.

STOCKS ARE ALSO HELD AT BELFAST & DUBLIN



COPPER ROOFING

F. BRABY & CO., LTD. Braby House, Smithfield Street, London, E.C.I

## LM **furniture**

Sales Office: 63 Dean Street London WI Regent 1848



Were pleased to supply all SANITARY WARE and FITTINGS as specified for the CHAMBERLAIN HALL of RESIDENCE

69-81 COMMERCIAL ROAD, SOUTHAMPTON 'phone 24871 and at Bournemouth, Andover, Taunton, New Milton, Poole, and Weymouth

## HAWKINS OF GOSPORT

Building, Civil Engineering and

Public Works Contractors

GENERAL CONTRACTORS to the

CHAMBERLAIN HALL OF RESIDENCE,

illustrated in this issue on pages 384-7

Registered Office, Joinery Works, Plant and Transport Depot at WESTFIELD ROAD, GOSPORT, HANTS.

'Phone 81251 (5 lines)

Sussex Branch: THE WHARF, MIDHURST 'Phone 34

**ELECTRICAL CONTRACTORS** 

THE

COLSTON

ELECTRICAL COMPANY ORCHARD STREET

BRISTOL I Works Division: SILVERTHORNE LANE

BRISTOL 2



## HOPE'S WINDOWS

H. & C. DAVIS & Co., Ltd.,

ARCHITECTURAL IRONMONGERS and METALWORKERS,

I, THE PAVEMENT, LONDON, S.W. 4,

were entrusted with the supply of ARCHITECTURAL IRONMONGERY. BALUSTRADES, GUARD RAILS and METALWORK to KITCHEN FITMENTS



UNIVERSITY

OF

SOUTHAMPTON

CHAMBERLAIN HALL KITCHENS EQUIPPED BY BENHAM & SONS

Other kitchens equipped for Southampton University include :

Refectory and Students Union.

School of Navigation, Warsash,

Halls of Residence : Connaught Hall. Highfield Hall. South Stoneham House. Glen Eyre.

Benham and Sons Limited, 66 Wigmore Street London, W.I Tel: HUNter 4422 (24 lines) Branches: BIRMINGHAM, BRIGHTON, BOURNEMOUTH, CARDIFF, GLASGOW, MANCHESTER, YORK.

132

## Where decisions are made -

## or pleasures taken



From cinema to boardroom, restaurant to international airline office, wherever first class design and comfort are at a premium there is a place for Stafford Furniture. Write for illustrated brochure and full details of our range.





Photograph by permission of Pun American Airways, Piccadilly, W.1.

FURNITURE LTD., 19 20 and 21 Leicester Square, London, W.C.2. Telephone: WHItehall 2231



# The Architects' Collection

Carpets made to Architects' Specifications

"Architects' Collection" is a 2-colour Wilton carpet, consisting of 4 designs, eminently suitable for modern interiors. Made in 18 interchangeable colour ways, it is available in 3 qualities.

We gladly make up to architects' own specifications, any colour and any size. Our specialised knowledge is readily available. For advice and information contact the factory.

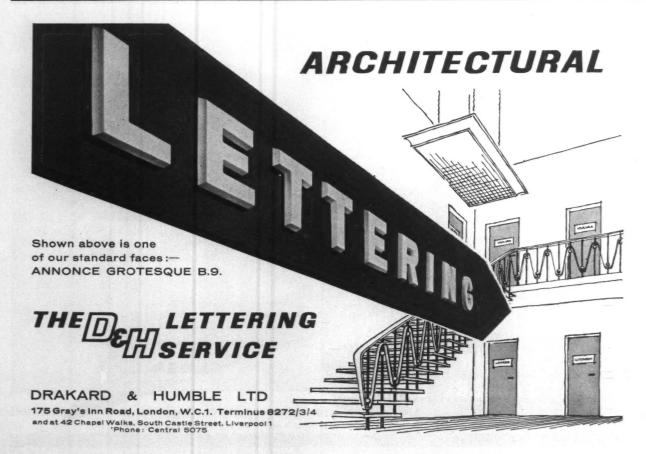
THE WILTON ROYAL CARPET FACTORY LIMITED

WILTON

NEAR SALISBURY

WILTS.







'ESTATE'



'RADIAL'

## Sliding or Folding Doors and Partitions

run more smoothly, far longer

on Allard

SLIDING DOOR GEARS

#### 'ESTATE'

Ellard 'ESTATE,' sliding door gear is designed for use with all internal straight sliding doors up to 100 lbs. each in weight.

'ESTATE' gear has enjoyed extensive popularity for many years and is still selected for use on large housing estates and New Towns throughout the country.

#### 'RADIAL'

Ellard 'RADIAL', 'round the corner' sliding door gear, is suitable for private garages, council lock-ups (singly or in multiples), commercial garages, motor and motor cycle showrooms and for all openings where maximum door width is required.

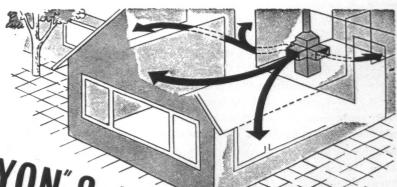
For Easy Reference. Please write for our handy literature wallet containing full details of our most popular types of sliding door gear.

BARBOUR INDEX No. 230

ELLARD SLIDING DOOR GEARS LTD., (Desk 5/5) Works Road, Letchworth, Herts. Tel: 613/4
LONDON OFFICE: 5 New Bridge Street, Ludgate Circus, E.C.4. Tel: CITy 4815

## RAPID HEATING

is just one of the good reasons why more and more architects have discovered the many technical and practical advantages of the



SUGG "HALCYON" Selective Air Heater



Illustration of Halcyon Model F.45 shown with the ducting removed.

A TEMPERATURE RISE OF UP TO 20°F CAN BE SUPPLIED TO AN AVERAGE ROOM IN ABOUT 10 MINUTES.

This "warmth where you want it" equipment presents no difficulties in installation, by simple duct system, suitable for houses, bungalows and flats.

It is compact, easy to control and economical to maintain. The "HALCYON" time

switch can be set to operate automatically at any required time.

CAPITAL COST UNDER £80

Choose "HALCYON"—for a new high standard of near-central domestic heating. Thousands already in use.

Literature and full technical details available from

WILLIAM SUGG & COMPANY LTD., 67-73, Regency Street, London, S.W.I
Telephone: VICtoria 3211



Photograph by courtesy of King Edward's School, Whitley.

## rubber flooring by MORRIS

The photograph shows our "Studded Tile" flooring, selected by Gerald S. Jones & Sykes, architects, and installed by Chapman, Lowrie & Puttick Ltd., in King Edward's School, Whitley. Morris non-slip studded flooring is available in a very large range of colours, made in 12-in. square tiles, 3/16in. thick. Rubber flooring tiles designed and produced by Morris Rubber Industries Ltd. combine an inbred resistance to wear with an outward appearance which looks well in all kinds of surroundings. Available in many attractive colours and patterns, warm, hygienic, quiet and resilient, Morris Rubber Tiles will satisfy the need for hard-wearing floor covering wherever people work and live. Please let us send you more detailed information about Morris Rubber Flooring and, when in London, see our exhibit at The Building Centre, 26 Store Street, W.C.I.

SELECTED BY THE COUNCIL OF INDUSTRIAL DESIGN FOR EXHIBITION IN DESIGN CENTRE

#### MORRIS RUBBER INDUSTRIES LIMITED



High Road - Byfleet - Surrey Telephone: BYFLEET 45651/4 Telegrams: RUBBER, BYFLEET



#### ANTONI GAUDI

BY JOSEP LLUIS SERT & JAMES J. SWEENEY

In recent years there has arisen a widespread interest in the work of the great Spanish architect Antoni Gaudi. For too long Gaudi was regarded merely as an eccentric, an outsider: the true importance of the contribution he made to architecture was misunderstood; and art historians failed to allocate to him his rightful place in the historical development of the Modern Movement.

Writing with detachment and without prejudice, the authors trace Gaudi's life and work from his days as a student to his death in 1926. The picture which emerges is that of a wholly sincere architect-builder who lived only for his chosen work; one who quickly freed himself from the then accepted imitative styles to build in accordance with his own personal and highly original principles. The authors lay stress on Gaudi's constant reference to nature, his preoccupation with structural principles, his habit of making models which showed him exactly what loads and stresses his buildings would have to bear. A dramatic collection of photographs in monochrome and colour, together with many detail drawings, show that Gaudi's work richly deserves the attention it is now receiving.

Size  $11\frac{1}{4} \times 8\frac{3}{4}$  ins. 184 pages. 184 half-tone illustrations, 13 in full colour. 73s. 6d. net. Postage 2s.



THE ARCHITECTURAL PRESS
9-13 Queen Anne's Gate, London S.W.1
U.S. edition: Praeger, New York

## BOLDINGS

invite
you
to
view
the
finest
quality
sanitary
fittings
in
their
showrooms
at
58 Davies St., London, W.1

JOHN BOLDING & SON LTD.

Grosvenor Works, Davies St., London, W.1

Telephone: MAYfair 6617







For every type of window and door, old or new, there's Chamberlin weatherstripping equipment

#### DATA SHEETS FOR ARCHITECTS AND BUILDERS

We invite you to send for the Chamberlin Folder containing full technical data and dimensional drawings. As needs, techniques and materials develop, we will keep you posted with new sheets.



There is also a real service in advice and installation; please make full use of it.

CHAMBERLIN WEATHERSTRIPS LIMITED

34 Elm Road, Chessington, Surrey Lower Hook 1181

GD570

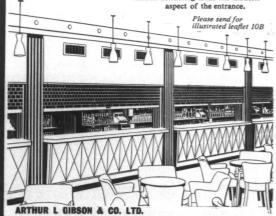
JAMES
make good
METAL
WINDOWS

W. JAMES & CO. LTD. Hythe Rd. Willesden Junction LADbroke 6471 (6 lines) N.W.10 \* RINROW GRILLES

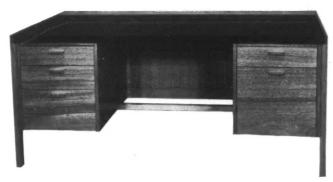
by the makers of Kinnear Shutters and Kinylon Grilles



of combining complete protection with an
attractive appearance. Although the Kinrod Grille
is enormously strong, its pattern gives good visibility
without detracting from the modern
aspect of the entrance.



Twickenham, Middx. Tel. Popesgrove 2276. Birmingham: Highbury 2804 Glasgow: Halfway 2928 Manchester: Central 1008 Cardiff 51428



Model DP53, £45.0.0. One of the double pedestal desks from the Mahogany Range.

## LUCAS of LONDON

introduce two new ranges of office furniture designed by Herbert Berry, M.S.I.A. and Christopher Cattle Des. R.C.A. Both ranges are flexible and include a wide variety of pieces. Careful detailing, exactly right dimensions, good proportions and the use of natural materials have resulted in a satisfying aesthetic.

Illustrated brochures giving full information about prices, specifications and dimensions will be gladly sent or consult your stockist.

The Area Representative would be pleased to call on request. A visit to the showrooms and factory would be rewarding.

Lucas of London, Ltd., Old Ford, London, E.3

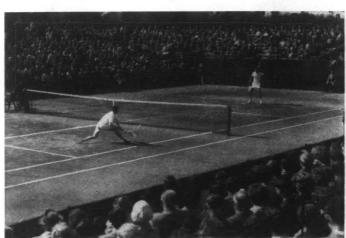
MAHOGANY RANGE Low in price EXECUTIVE RANGE

Medium priced

## EN-TOUT. GAR

#### Hard Lawn **Tennis Courts**

As used for the British Hard Court Championships at Bournemouth and first-class **Tournaments** throughout the country.



Men's Singles Final, British Hard Court Championships on 'En-Tout-Cas' Court, 1960

**Bowling Greens** Football Grounds **Cricket Pitches** Running Tracks Swimming Pools Squash Rackets

Courts

## EN-TOUT-CAS

3 SYSTON, LEICESTER (SYSTON 3322-7) London Office: Harrods (4th Floor) Knightsbridge, S.W.1

## HMSO

## Field Measurement of Sound Insulation between Buildings

In an earlier Research Paper, Noise in Three Groups of Flats with different Floor Insulations (4s., post 4d.) a grading system for classifying sound insulation in houses and flats was described by the Building Research Station. In applying it the designer needs to know the probable performance of whatever systems of construction he may be considering, and the only adequate guidance is that provided by actual measurements in buildings with relevant details of construction. Systematic measurements have been made for the past twelve years, and this Research Paper describes the principles employed and gives full results in the form of data sheets for 464 specific constructions. 35s. (post 1s. 9d.)

From the Government Bookshops

or through any bookseller

## HMSO



RESILIENT FOAM CUSHIONS

Dunlopillo cushions and backrests supplied to any specification, uncovered or covered and ready for installation on site.

LATEX UPHOLSTE

THE LEATING

USHIONS

MAY WE

SOND YOU

SOND YO

## Little Boiler — BIG PERFORMER

## Perkins MINI-BOILER

The little oil-heated boiler with the big performance. Provides domestic hot water and heating.

Designed for wall fixing, it measures only  $37'' \times 12'' \times 12''$ . Self-contained with a capacity of 20,000 B.T.U.'s per hour. No oil connections within the house except those sealed within the appliance.

Induced draught flueless design.

Fully automatic and thermostatically controlled.

Same unit can be provided to operate a space heater instead of a water heater.

The Mini-Boiler was first exhibited at the Ideal Home Exhibition, London, this year.

Write for particulars to:

## PERKINS BOILERS LTD.

Dept. T.2 Mansfield Rd., DERBY. Tel: DERBY 48235 (5 lines) London Office: 82 Merton High Street, London, S.W.19. Tel: LIBerty 5271/2

#### MINI-HEATER

Mini-Heater is the same unit exactly as the Mini-Boiler (20,000 B.T.U.'s) except that the water boiler is replaced by a scientifically designed finned radiant heater built up in sections, which absorbs the heat from combustion and exchanges it to the air which passes over the surface. There are three standard assemblies.

#### Mini-Minor

a natural air convector.

Mini-Heater

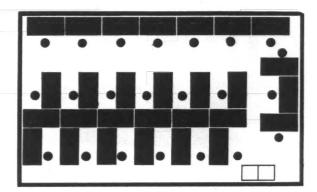
fanned air circulator.

Mini-Major

large version ducting warm air to different rooms.



# Getting a Quart into a Pint Pot?



A room 30' x 18' for 22 personnel—scale 1/100 approx.

Even we at S.R.S. don't claim to be able to achieve the impossible, but we do say that the use of FloLine office furniture will enable you to take the greatest possible advantage of your available office space. FloLine is not only practical and beautiful but is designed for the comfort and efficiency of your staff.

Other outstanding advantages are:-

- ★ Resistant to scratches and burns (greatly approved by Insurance Companies).
- \* Cannot rot, warp, shrink or split.
- All tops are 4' x 2' so that your office can be planned on the modular principle and altered or added to as you wish.
- ★ All external surfaces covered with FORMICA laminates.
- ★ Drawers, made from selected hardwoods, and insides treated with dirt-resistant coating.
- ★ Complete rigidity—bases fitted with plinths rather than legs.
- ★ A wide range of standard finishes available and special colour schemes produced at no extra cost.

The work and appearance of your office will flow with FloLine





## **FloLine**

Please write for fully illustrated details to:

S. R. SAWYER LIMITED

80-82C Uxbridge Road, Ealing, W.13

Telephone: EAL 6995

DaS 661 AR



Wise heads behind wise hands build BARKER

ROLLER SHUTTERS ELECTRIC LIFTS HAND LIFTS DELIVERY HOISTS



Wise heads on the shoulders of applications engineers, and

designers, with the accumulated know-how of over 90 years

who know more about their job than words could ever teach . . . to whose sensitive touch metals respond like sculptor's clay. Together heads and hands are responsible for the perfection of

experience at their fingertips, stand behind the hands of craftsmen









For full details of Barker products send for illustrated literature A.11 to:-JOHN BARKER & SONS (ENGINEERS) LTD.

Union Street, Ancoats, Manchester 4. Tel: COLlyhurst 2018 London: 71 Strawberry Vale, Twickenham. Telephone: POPesgrove 0794

## HIGH FELL GREEN SLATE

technical literature (recommended by R.I.B.A. for use in Universities)

## cladding

a product of
LIMESTONE & GREEN SLATE SLAB CO. (WESTMORLAND) LTD.
APPLEBY ROAD, KENDAL. tel: Kendal 1246

## HATHERNWARE

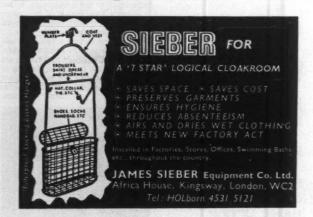
Send for full details to:

HATHERNWARE LTD · DEPT. AR · LOUGHBOROUGH · LEICS. Tel: Hathern 273

#### IN GLASGOW

BLACK GLAZED AND GREY STONE-FACED SLABS AND BLOCKS have been effectively used for the Offices at Bridgeton, Glasgow for Messrs. Mayor & Coulson Ltd. (Architect: John B. Wingate Esq., L.R.I.B.A.)

@HL.101

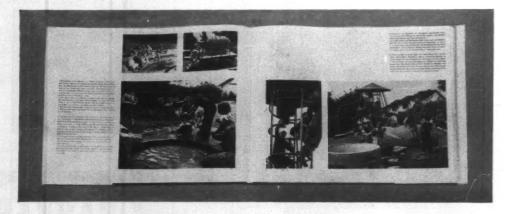




Playgrounds and Recreation Spaces

Ledermann and Alfred
Trächsel. Translated by
Ernst Priefert
8\frac{3}{4}" by 11\frac{1}{8}". 176 pages
with 302 halftones and
83 line illustrations.
63s. 0d. postage 2s. 0d.

Introduction by Alfred



It is now recognised by planners and local authorities that imaginatively-designed children's playgrounds and adult recreation spaces should be regarded as an essential amenity for all urban areas of any size, whether new or old; but so far very few really successful examples have appeared in the British Isles, and children in towns and cities continue, at their peril, to play their games in streets

and on roads. On the Continent, in Scandinavia and in the U.S. however, the subject is being tackled with the seriousness and care that it deserves, and there are many interesting and successful solutions to be seen.

This book, after short introductory essays written by two of Europe's leading playground designers, consists of photographs and plans of a great variety of interesting examples taken from many countries. Each scheme is accompanied by a short explanatory text, together with constructional details. The examples shown range from the smallest and most inexpensive to large schemes covering many acres, and they contain a wide variety of ingenious ideas, constructions and equipment for play and recreation.

WE ARE LOOKING FOR

## Britain's Top lighting Designer

For the most important job in the lighting industry. He will be expected to develop quickly fluorescent lighting fittings of all types and with the materials they incorporate, the techniques they employ and the sales appeal they enjoy, lead the lighting industry in this country for many years to come.

He will be capable of complete liaison with both marketing, research and production resources and will develop and control his own design and engineering unit.

He will be working for a company whose technical, production, sales and development organisations are known throughout the world.

WRITE TO BOX NO. 101
THE ARCHITECTURAL REVIEW

# DESIGNER

An Industrial Designer is required to create and maintain the high standards of BEA's corporate identity, not only in graphic work and conventional advertising but also in Sales Offices, Town Terminals, aircraft, vehicles and all the facets of the airline's activities which are seen by the public. He will report to the Advertising Manager who is responsible for the maintenance of the Corporation's house style

Experience of, and versatility in, a wide range of industrial design work is required and suitable professional qualifications, such as MSIA, ARCA or ARIBA, are essential. Some experience of, although not necessarily full qualifications in, architectural work is highly desirable. He should be able to run a small office

Salary range: £1237 - £1567

Apply to: Personnel Officer (Central London), BEA Dorland House, 14-20 Regent Street, London, SW 1

BRITISH EUROPEAN AIRWAYS





Main Factory & Head Office:
Penn St., near Amersham, Bucks.

Dancer & Hearne Bros. Ltd

Sales office and showroom

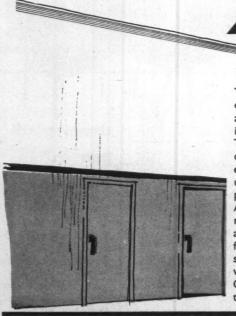
WEST WYCOMBE ROAD, HIGH WYCOMBE, BUCKS

Phone: High Wycombe 1496/7

				PAGE
Access Equipment Ltd.	114		***	58 128
Accrington Brick & Tile Co.	Lta.	***	***	90, 91
Airscrew Company & Jicwo	bt.I be	***	***	90, 91
Allom Heffer & Co. Ltd.			***	69
Appleby Frodingham Steel	Co.	***	***	64
Arborite Company (U.K.) L	td.			56, 57
Architectural Press Ltd.			126, 130,	136, 142
Armstrong Cork Co. Ltd.	***			77
Atlas Lighting Ltd	***	***	***	13
Atlas Stone Co. Ltd		***	***	81
Barker, John, & Sons (Engir	neere) 1	14		141
			***	143
Beaufield, James, Ltd.	***	***		84
				132
Benjamin Electric Ltd.	***		***	55
Benjamin Electric Ltd. B.I.P. Reinforced Products	Ltd.			16
Bolding, John, & Sons Ltd.			6	137
Booth, John, & Sons (Bolton Briggs, Wm., & Sons Ltd.	n) Ltd.	***		101
Briggs, Wm., & Sons Ltd.	***			18
British Ceramic Tile Council			***	17
British Constructional Steely	vork As	ssn.	***	71
British Paints Ltd	***	***	***	94
British Sanitary Fireclay Ass Broughton Moor Green Slate			***	60, 61
Dioughton moor Green State	Suall		***	02
Cafferata & Co. Ltd				120
Carron Co. Ltd				102
Chamberlin Weatherstrips L	td.		***	138
Chase Products (Engineering	) Ltd.		***	142
Colthurst, Symons & Co. Lto	1.			21
Colvilles Ltd	***		***	98
Copperad Ltd	***	***	***	74
Cox & Co. (Watford) Ltd.	***	***	***	36 19
Crittall Mfg. Co. Ltd Cullum, Horace W., & Co. L			***	41
Canada, Florace W., & Co. L.	eri.	***	***	41
Dancer & Hearne Bros. Ltd.				143
Dawnays Ltd				23
Denton Edwards (Paints) Ltd	d.			24
Drakard & Humble Ltd.				134
Dundee Linoleum Co. Ltd.			***	125
T				***
East & Son Ltd	***	***	***	115
Econa Modern Products Ltd,			***	25 66
Edinburgh Weavers Elco Plastics Ltd		***	***	103
Ellard Sliding Door Gears Lt.			***	135
			***	22
English Clock Systems Ltd.				20
				139
				79
Falk, Stadelmann & Co. Ltd.			***	63
Fox, Samuel, & Co. Ltd.			***	123
Casasiana Cas H Ca 144				105
Gascoigne, Geo. H. Co. Ltd. Gas Council, The		***	***	105 146
Gas Council, The General Electric Co. Ltd	***	***	***	143
General Electric Co. Ltd. (Lig	hting)		4, 5,	
Commission of the (Lig			4, 0,	-0,00

	PAGE
General Electric Co. Ltd. (Installation	Equip-
ment)	
Gibson, Arthur L., & Co. Ltd	138
	38
Goodlass, Wall & Co. Ltd	45
Haden, G. N., & Sons Ltd Hall, J. & E., Ltd Hallam, Vic, Ltd Harvey, G. A., & Co. (London) Ltd.	67
Hall, J. & E., Ltd	104
Hallam, Vic, Ltd	30
Harvey, G. A., & Co. (London) Ltd.	2
Hathernware Ltd	
Hawkins Bros. (Gosport) Ltd Hayward & Son Ltd	
Hayward & Son Ltd	***
Hermeseal Acoustics Ltd	40
Hill, Richard, Ltd	110
Hills (West Bromwich) Ltd	107
H.M.S.O	140
Hollow Seal Glass Co. Ltd	
Home Fittings (Great Britain) Ltd.	119
Hope, Henry, & Sons Ltd	68
Ideal Boilers & Radiators Ltd. (Heat	ing) 40
Ideal Boilers & Radiators Ltd. (S	anitary
Ware)	121
Imperial Chemical Industries Ltd. (Pl	
Indestructible Paint Co. Ltd	11
ames, W., & Co. Ltd	138
Kent Kordless Ltd Kenwood Manufacturing (Woking) Lt	85 d 46, 47
Kenwood manufacturing (woking) Ed	d 46, 47
Lanarkshire Steel Co	52, 53
Latex Upholstery Ltd	
atex Upholstery Ltd eigh, W. & J., Ltd	0.0
illeshall Co. Ltd.	131
Limestone & Green Slate Slab Co. Lt. Linoleum Manufacturing Association	d 142
inoleum Manufacturing Association	75
Lucas of London Ltd	
Lumenated Ceilings Ltd	
uxaflex Ltd	8
Malkin Tiles (Burslem) Ltd	138
Mander Brothers Ltd	
farshall & Snelgrove Ltd	85
Mason, Joseph, & Co. Ltd. Mellor Bromley (Air Conditioning) Ltd	14
Mellor Bromley (Air Conditioning) Ltd	i 26
Mellowes & Co. Ltd Minnesota Mining & Mfg. Co. Ltd	113
dinnesota Mining & Mig. Co. Ltd	73
Monat Ltd	31
	111
Morris Singer Co. Ltd	111
National Coal Board (By-Products)	130
Samuel 187:111: 8. Come T. c. 1	44
ewman, william, & Sons Ltd	
Vorwood Steel Equipment Ltd	89
Norwood Steel Equipment Ltd	89
Owens-Corning Fiberglas (Chemicals T	rading
Newman, William, & Sons Ltd Norwood Steel Equipment Ltd  Owens-Corning Fiberglas (Chemicals T Co. Ltd.)	

				PAGE
Parnall, George, & Co. Ltd. Patent Glazing Conference				37
Patent Glazing Conference				65
Perkins Boilers Ltd				140
Permanite Ltd	C. T.			72
Pitchmastic Asphalt Paving Pilkington Bros. Ltd. (Insuli	CO. L	ta.	***	134
Plyglass Ltd	gnt)			114
Powell Duffryn Modulair Lte	4	***		144
Pugh Bros. Ltd				70
a agai bross bross				
Quicktho Engineering Ltd.			***	54
Race Furniture Ltd				88
Ramsay & Sons (Forfar) Ltd				131
Race Furniture Ltd Ramsay & Sons (Forfar) Ltd Redpath Brown Ltd.			***	51
Regillers, Ellille, & Co. (Lon-	uon) L	LU.	***	49
Revo Electric Co. Ltd.	***			9
Reyrolle, A., & Co. Ltd. Richards Tiles Ltd	***			48
Richards Thes Ltd				6
Riley (I.C.) Products Ltd. (O	u-nrin	g)		118
Sankar I U & San I td				83
Samuer S R I td				141
Sankey, J. H., & Son Ltd. Sawyer, S. R., Ltd Semtex Ltd. (Synthanite) Shanks & Co. Ltd			444	124
Shanks & Co. I td		***		15
Shires & Co. (London) Ltd.			***	100
Sieber, James, Equipment Co	Ltd.			142
Sieber, James, Equipment Co Smith & Walton Ltd.			***	29
Sound Control Ltd				122
Stafford Furniture Ltd. Steel Radiators Ltd				133
Steel Radiators Ltd				7
Steele's (Contractors) Ltd. Stramay Ceilings (G.R.) Ltd.				129
				50
Stoner & Saunders Ltd. Sugg, William, & Co. Ltd.		* * *		108
Sugg, William, & Co. Ltd.			444	135
Super Silent Ltd				27
Taylor Woodrow (Arcon) Ltd				12
Thermalite Ytong Ltd.			***	145
Timber Development Assn. L	td		***	116, 117
Tretol Ltd				59
Troughton & Young (Lightin	g) Ltd	l.		93
Vetrona Fabrics Ltd.				35
Wates Ltd				109
Wall Paper Manufacturers Lt Wandsworth Electrical Mfg. ( Wardle, Bernard, (Everflex) I	d.			76
Wandsworth Electrical Mfg. (	Co. Lte	d.		127
Wardle, Bernard, (Everflex) I	.td.			62
			***	3
West's Piling & Construction	Co. L	td.		86
Williams & Williams Ltd. Williamson, Jas., & Son Ltd. Wilson, Frank, (Filing) Ltd.				32, 33
Williamson, Jas., & Son Ltd.				28
Wilson, Frank, (Filing) Ltd.	T del		***	128
Wilson, Frank, (Filing) Ltd Wilton Royal Carpet Factory Wright, John, & Sons (Venee	LIG.	a		133
Wilght, John, & Sons (Venee	ral Fre	Me	***	34
V-shabina Immenial Mad-1- T 4	a :			00
Yorkshire Imperial Metals Lt	u.		eee	99



The pleasing slender grace of the Aeroline Diffuser allows it to blend perfectly in any surroundings. The air distribution characteristics are as effective as the visually unbroken lengths are pleasing to the eye. Aeroline Diffusers are manufactured in steel and are obtainable in various finishes. They lend themselves admirably to a wide range of applications. Consult our Engineers for full technical and design information.

BARBOUR REFERENCE. If you have the Barbour Index, see File No. 320 for detailed information.





4EROLINE.

**DIFFUSERS** 





AR enquiry service

If you require catalogues and further information on building products, equipment and services referred to in the advertisements appearing in this issue of The Architectural Review please mark thus  $\checkmark$  the relevant names given in the alphabetical index overleaf. Then detach this page and in the space overleaf type, or write in your name, address, profession or trade; fold the page so that the post-paid address is on the outside, and despatch.

All requests received will immediately be passed to the advertisers concerned.

Overseas readers, unfortunately, cannot take advantage of reply-paid postage; in the interest of time-saving we hope that they will return completed forms to us by air-mail.

Postage
will be paid
by
Licensee

No Postage Stamp necessary if posted in Great Britain of Northern Ireland

BUSINESS REPLY FOLDER Licence No. S.W.1761

The ARCHITECTURAL REVIEW

9-13 Queen Anne's Gate

London, S.W.1.

**ENGLAND** 

FOLD HERE

## **Enquiry Service Form**

### alphabetical index to advertisers

	PAGE CODE		PAGE CODE		PAGE CODE
Access Equipment Ltd	58 🗆 0495	General Electric Co. Ltd. (In-		Parnall, George, & Co. Ltd	37 🗆 0162
		stallation Equipment)	42 🗆 0306		_
Accrington Brick & Tile Co. Ltd.	128 🗆 0002		138 🗆 0093		65 🗆 0332
Airad Ltd	90, 91 🗆 0516	Gibson, Arthur L., & Co. Ltd		Perkins Boilers Ltd	140 🗆 0277
Airscrew Company & Jicwood		Gliksten Doors Ltd	38 🗆 0095	Permanite Ltd	72 🗆 0464
Ltd	95 🗆 0005	Goodlass, Wall & Co. Ltd	45 🔲 0096	Pilkington Bros. Ltd. (Insulight)	39 🗆 0471
Allom Heffer & Co. Ltd	69 🗆 0008		a= aa=a	Pitchmastic Asphalt Paving Co.	
Appleby Frodingham Steel Co	64 🗆 0481	Haden, G. N., & Sons Ltd	67 🗆 0270	Ltd	134 🗆 0489
Arborite Company (U.K.) Ltd	56, 57 🗆 0237	Hall, J. & E., Ltd	104 🗆 0098	Plyglass Ltd	114 🗆 0338
		Hallam, Vic, Ltd	30 🗆 0099	Powell Duffryn Modulair Ltd	144 🗆 0339
Architectural Press Ltd. 126, 130,		Harvey, G. A., & Co. (London)			
Armstrong Cork Co. Ltd	77 🗆 0493	Ltd	2 🗆 0104	Pugh Bros. Ltd	70 🗆 0512
Atlas Lighting Ltd	13 🗆 0015	Hathernware Ltd	142 🗆 0105	Onislaba Fasian da a III	E4 E3 01E0
Atlas Stone Co. Ltd	81 🗆 0016			Quicktho Engineering Ltd	54 🗆 0170
		Hawkins Bros. (Gosport) Ltd	132 🗆 0519	Page Promiter Table	00 - 0041
Barker, John & Sons (Engineers)		Hayward & Son Ltd	137 🗆 0517	Race Furniture Ltd	88 🗆 0341
Ltd	141 🗆 0018	Haywards Ltd	10 🗆 0312	Ramsay & Sons (Forfar) Ltd	131 🗆 0171
Beaufield, James, Ltd	84 🗆 0423	Hermeseal Acoustics Ltd	43 🗆 0111	Redpath Brown Ltd	51 🗆 0173
Benham & Sons Ltd	132 🗆 0284	Hill, Richard, Ltd	112 🗆 0457	Regniers, Emile, & Co. (London)	
			107 🗆 0114	Ltd	49 🗆 0511
Benjamin Electric Ltd	55 🗆 0265			Revo Electric Co. Ltd	9 🗆 0433
B.I.P. Reinforced Products Ltd.	16 🗆 0021	H.M.S.O	140 🗆 0403		
Bolding, John, & Sons Ltd	137 🗆 0024	Hollow Seal Glass Co. Ltd	110 🗆 0117	Reyrolle, A., & Co. Ltd	48 🗆 0175
Booth, John & Sons (Bolton) Ltd.	101 🗆 0027	Home Fittings (Great Britain)		Richards Tiles Ltd	6 🗆 0177
Briggs, Wm., & Sons Ltd	18 🗆 0451	Ltd	119 🗆 0118	Riley (I.C.) Products Ltd. (Oil-	
		Hope, Henry, & Sons Ltd	68 🗆 0120	firing)	118 🗆 0178
British Ceramic Tile Council	17 🗆 0030	Trope, Tromy, at Both Error			
British Constructional Steelwork		Ideal Boilers & Radiators Ltd.		Sankey, J. H., & Son Ltd	83 🗆 0184
Assn	71 🗆 0031	(Heating)	40 🗆 0124	Sawyer, S. R., Ltd	141 🗆 0499
British Paints Ltd	94 🗆 0032	Ideal Boilers & Radiators Ltd.		Semtex Ltd. (Synthanite)	124 🗆 0186
British Sanitary Fireclay Asso-		(Sanitary Ware)	121 🗆 0315		
ciation	60, 61 🗆 0033	Imperial Chemical Industries Ltd.			15 🗆 0188
Broughton Moor Green Slate		(Plastics)	92 🗆 0521	Shires & Co. (London) Ltd	100 🗆 0466
Quarries	82 🗆 0426		_	Sieber, James, Equipment Co.	
		Indestructible Paint Co. Ltd	11 🗆 0458	Ltd	142 🗆 0192
Cafferata & Co. Ltd	120 🗆 0034	Tomas W & Co Ted	138 🗆 0127	Smith & Walton Ltd	29 🗆 0194
		James, W., & Co. Ltd	136 🗆 0127	Sound Control Ltd	122 🗆 0196
Carron Co. Ltd	102 🗆 0291	Kent Kordless Ltd	85 🗆 0509	Stafford Furniture Ltd	133 🗆 0470
Chamberlin Weatherstrips Ltd.	138 🗆 0041		00 🖺 0000	O. 1.D. 11.4 . T.11	
Chase Products (Engineering)	3093 k	Kenwood Manufacturing(Woking)	40 47 7 0100	Steel Radiators Ltd	7 🗆 0200
Ltd	142 🗆 0042	Ltd	46, 47 🗆 0129	Steele's (Contractors) Ltd	129 🗆 0406
Colthurst, Symons & Co. Ltd	21 🗆 0044	Lanarkshire Steel Co	52, 53 🗆 0500	Stoner & Saunders Ltd	108 🔲 0515
Colvilles Ltd	98 🗆 0045			Stramax Ceilings (G.B.) Ltd	50 🗆 0202
	And the second s	Latex Upholstery Ltd	140 🗆 0131	Sugg, William, & Co. Ltd	135 🗆 0203
Copperad Ltd	74 🗆 0046	Leigh, W. & J. Ltd	80 🗆 0133		
Cox & Co. (Watford) Ltd	36 🗆 0048	Lilleshall Co. Ltd	131 🗆 0136	Super Silent Ltd	27 🗆 0412
Crittall Mfg. Co. Ltd	19 🗆 0052	Limestone & Green Slate Slab Co.		TD-3-377-3 (A) Y 4 3	10 - 0007
Cullum, Horace W., & Co. Ltd	41 🗆 0055	Ltd	142 🗍 0508	Taylor Woodrow (Arcon) Ltd	12 🗆 0207
		Linoleum Manufacturing Association	75 🗆 0137	Thermalite Ytong Ltd	145 🗆 0210
Dancer & Hearne Bros. Ltd	143 🗆 0520	Lucas of London Ltd	139 🗆 0518	Timber Development Assn. Ltd.	116, 117 🖂 0370
Dawnays Ltd	23 🗆 0058		-	Tretol Ltd	59 🗆 0414
Denton Edwards (Paints) Ltd	24 🗆 0061	Lumenated Ceilings Ltd	78 🗆 0324	Troughton & Young (Lighting)	
		Luxaflex Ltd	8 🗆 0325	Ltd	93 🗆 0212
	134 🗆 0455	Mallein Tiles (Purslam) T44	129 - 0140		22 D 0218
Dundee Linoleum Co. Ltd	125 🗆 0454	Malkin Tiles (Burslem) Ltd	138 🗆 0140	Vetrona Fabrica I td	25 🗆 0001
Took & Con Tal	115 = 0055	Mander Brothers Ltd	87 🗆 0141	Vetrona Fabrics Ltd	35 🗆 0221
East & Son Ltd	115 🗆 0255	Marshall & Snelgrove Ltd	85 🗆 0327	W-11 D V 1	70 T 0007
Econa Modern Products Ltd	25 🗆 0067	Mason, Joseph, & Co. Ltd	14 🗆 0143	Wall Paper Manufacturers Ltd.	76 🗆 0225
Edinburgh Weavers	66 🗆 0068	Mellor Bromley (Air Condition-		Wandsworth Electrical Mfg. Co.	
Elco Plastics Ltd	103 🗆 0069	ing) Ltd	26 🗆 0145	Ltd	127 🗆 0226
Ellard Sliding Door Gears Ltd.	135 🗆 0070			Wardle, Bernard (Everflex) Ltd.	62 🗆 0227
		Mellowes & Co. Ltd	113 🗆 0146	Warerite Ltd	3 🗆 0510
Engert & Rolfe Ltd	22 🗆 0299	Minnesota Mining & Mfg. Co. Ltd.	73 🗆 0421	777 · 7 · 1	109 🗆 0400
English Clock Systems Ltd	20 🗆 0300	Moffat Ltd	31 🗆 0459	Wates Ltd	109 🗆 0400
En-Tout-Cas Co. Ltd	139 🗆 0074	Morris Rubber Industries Ltd	136 🗆 0149	West's Piling & Construction Co.	00 = 0000
Esavian Ltd	79 🗆 0076	Morris Singer Co. Ltd	111 🗆 0150	Ltd	86 🗆 0229
				Wilson, Frank (Filing) Ltd	128 🗆 0514
Falk, Stadelmann & Co. Ltd	63 🗆 0248	National Coal Board (By-Pro-	2	Williams & Williams Ltd	32, 33 🖂 0232
Fox, Samuel, & Co. Ltd	123 🗆 0217	ducts)	130 🗆 0461	Williamson, Jas., & Son Ltd	28 🗆 0254
, 300000, 00 000 2002		Newman, William, & Sons Ltd.	44 🗆 0155	Wilton Royal Carpet Factory Ltd.	133 🗆 0417
Gascoigne, Geo. H. Co. Ltd	105 🗆 0089				100 🗆 0117
Gas Council, The		Norwood Steel Equipment Ltd.	89 🗆 0419	Wright, John & Sons (Veneers)	34 🖂 0369
	146 🗆 0090	Owens Coming Fibersles (Chart		Ltd	34 🗆 0368
General Electric Co. Ltd. (Light-	06 07 🗆 0300	Owens-Corning Fiberglas (Chemi-	106 🗆 0395	Vorkehira Imperial Metals I +4	99 🗇 0531
ing) 4,5	, 96, 97 🗆 0369	cals Trading Co. Ltd.)	100 🗆 0303	Yorkshire Imperial Metals Ltd	99 [ 0001

Write in block letters, or type, your name, profession and address below, and fold so that the post-paid address overleaf is on the outside.

NAME				
PROFESSION				
ADDRESS				







## THERMALITE

# REDUCED DELIVERY PERIODS

due to increased production

orders placed in April-

delivery in 12 WEEKS

orders placed in May and June-

delivery in 8 WEEKS

orders placed in July and onwards—

delivery in 4 WEEKS

## THERMALITE YTONG LIMITED

Hams Hall, Lea Marston, Sutton Coldfield, Warwickshire

Telephone: Coleshill 2081

A LAING COMPANY

Existing Factories: BIRMINGHAM and READING

New Factories: MANCHESTER, BLYTH and WEST THURROCK

Keirby Hotel, Burnley

# Get Golds With

# THE FLEXIBLE AS FUEL SERVICE

Get going with Gas, whatever the job.

Gas gives fierce or gentle Heat; fast or slow Heat; flexible Heat; fully automatic Heat ... but always clean, economic and reliable. Heat. With the benefits of the industry's research and its free technical advisory service, enjoy

1453 confidence with Gas .

ISSUED BY THE GAS COUNCIL

